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# Identifying at-risk students : a study of freshmen and the beginning college survey of student engagement

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# IDENTIFYING AT-RISK STUDENTS: A STUDY OF FRESHMEN AND THE BEGINNING COLLEGE SURVEY OF STUDENT ENGAGEMENT

A Dissertation

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy

in

The School of Human Resource Education  
and Workforce Development

by

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B.G.S., Nicholls State University, 2000

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May 2014

For my For my mom, Elise, who taught me about integrity, hard work, and dedication; I wish you could be here to celebrate with me. For my husband, Lonnie, for supporting me through it all.

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## **ABSTRACT**

This study explored the usefulness of variable measures gained from the Beginning College Survey of Student Engagement (BCSSE) as a way to predict student academic performance and identify potential at-risk students. First-year GPA was used as a measure to determine at-risk status and selected BCSSE variables and institutional data were examined as predictors of student performance. The target population included all first-time freshmen at a small, regional university in the south in the fall 2010, 2011, and 2012. The accessible population for the research questions on BCSSE completion included all students who completed the BCSSE in the given years of the study ( $N=2,007$ ). The accessible population for the research questions on at-risk students included all entering freshmen who completed at least one year of enrollment ( $N=3,045$ ). Results indicated that a large relationship exists between high school GPA and student performance as measured by first-year GPA. A statistically, but not practically significant relationship exists between selected BCSSE variables and student performance as measured by first-year GPA.

# **CHAPTER 1: INTRODUCTION**

## **Background of the Study**

In an effort to assist and retain as many students as possible, higher education institutions search for ways to identify students who may be at-risk of failing or becoming drop-outs. By better understanding the factors that lead to academic difficulty institutions can develop and maintain programs and services that foster academic success (Indiana University, 2012). By admitting a student, an institution shoulders an obligation to do what is necessary to help the student graduate (Tinto, 2012). Retention of students is important to institutional survival and early identification of and contact with students who may become at-risk is a crucial step in improving retention (Tinto, 1987). To identify students who may become at-risk, institutions should examine many factors to determine what affects retention for different types of students at different campuses (Tinto, 1987). Institutions should move away from stereotypical thoughts about at-risk students and examine factors such as patterns of entry, participation in the college environment, and factors affecting departure to understand what impacts student success (Tinto, 1987). These factors can lead institutions to identify students to include in effective retention programs (Tinto, Leaving college, 1987). If these programs are employed at the beginning of a student's college career, they are most effective (Tinto, 1987).

Several themes are recurring in the research literature pertaining to using academic and non-academic factors as predictors of student success and many survey instruments are available to institutions of higher education to facilitate data collection that will aid in the identification of at-risk students as well. This study examined these themes and data related to recent research in an attempt to explore the relationship between student success and selected student data and survey responses. This study incorporates relevant literature touching on the three themes listed

below to illustrate the various data used to identify at-risk students by institutions of higher education.

The first theme appearing in the research literature is that of using pre-college assessment data and academic performance data as a predictor of success. Two factors included in this category are ACT scores and high school GPA. A recent study found that ACT scores and high school GPA measures did account for some amount of variance in a student's academic performance in college as measured by their GPA (Sparkman, Maulding, and Roberts, 2012). On the other hand, some studies have found that these measures have no relation to academic success (Schuh, 1999). Schuh (1999) found that high school GPA and ACT scores are not good indicators of a student's success in college. At most institutions of higher education, ACT/SAT scores and high school GPA are included in the criteria used to admit students (Sawyer, 2007). These admission decisions are based on information touting the usefulness of test scores as predictors of success. Sawyer (2007) found that by studying ACT scores and completion rates after the first semester and year of enrollment that about 25% of students could be predicted as at-risk of dropping out by the end of their first year. He also presented a formula and a model for use at the institutional level to analyze school data (Sawyer, 2007). With so many studies examining ACT and/or high school data as predictors of success with conflicting results, there is a need for further study into factors that can be used to identify at-risk students.

Some researchers use non-academic and non-cognitive factors to study at-risk behavior and student success. Recent research using a self-assessment of personality factors of at-risk students found that some personality factors are helpful in predicting the success of at-risk students (Laskey & Hetzel, 2011). This study indicated that students who measured high in conscientiousness and agreeableness were more likely to accept direction, be retained at higher



levels, and had higher GPA measures (Laskey & Hetzel, 2011). On the other hand, students who were measured low on these personality factors needed more support and encouragement to use services (Laskey & Hetzel, 2011). These researchers used a five-factor inventory to assess personality and defined conscientiousness as being well organized, diligent and scrupulous and defined agreeableness as being trusting, sympathetic, and cooperative (Laskey & Hetzel, 2011). Other research has concluded that measuring psychosocial factors allows institutions to identify more dimensions of student need which in turn allows institutions to develop more effective intervention programs (Allen, Robbins, & Sawyer, 2010). Research has found that academic preparedness factors for college are important, but so are other factors that are non-academic. Other studies even identify demographic factors that contribute to college success and graduation (Sparkman *et al.*, 2012). For example, white females were found in one study as the student demographic most likely to graduate at a particular university (Sparkman *et al.*, 2012). This same study found that high school GPA and ACT score presented statistically significant results when regression was performed to determine if these factors were good predictors of college GPAs for students upon graduation (Sparkman *et al.*, 2012).

Some factors used for identifying at-risk students are measured either at the beginning of a student's college career or after several semesters of enrollment. Authors have identified the first year of college as a critical time in student retention and identification of at-risk students (Siegel, 2011). Studies have discovered that more students are retained if they can be identified as at-risk early in their first semester and then be connected with assistance that aids them in improving academic performance as well as student engagement. A 2008 study advocates for the identification of at-risk students before the end of their first semester of college (Marsh, Vandehey, & Diekhoff, 2008). This study supports using an introductory course as a way to

assess student performance using mid-term grades in an attempt to identify at-risk students and connect them with resources during their first semester (Marsh *et al.*, 2008). A course of this nature could include important topics such as time management, study skills, and test taking strategy (Marsh *et al.*, 2008). Marsh *et al.* (2008) also support an “early alert” type of system where faculty can submit the names of students who are struggling in their courses to personnel who can arrange to connect these struggling students with services if needed. Another factor in identification of at-risk students is college GPA. College GPA has been found as one predictor of success (Chen, 2012). Chen (2012) explains that in his study college GPA was the predictor with the largest magnitude of estimation; students who had higher GPAs were at a substantially lower risk of dropping out (Chen 2012).

Another recurring theme in the research about at-risk students is institutional factors. These factors include resources and access to student services (Chen, 2012). Some research has shown that increased expenditures on student services means decreased chances of dropouts (Chen, 2012). Institutions have enhanced the success of their students by allocating time and resources for services that benefit students, especially those that may be identified as at-risk (Chen, 2012). In times of challenging budget situations, institutions have had to balance the funding of academic programs and student services. Chen (2012) also found that integration on campus was very important. His study resulted in the finding that students who had a higher level of academic and social integration tended to have a lower dropout rate (Chen, 2012). This finding supports his description of lower dropout rates for campuses where services are funded at higher levels allowing students more access to assistance. Research presented later will also reference engagement and integration as factors that contribute to student success.

Studies have supported the efforts of faculty and advisors to identify at-risk students as soon as possible during their first semester of college or even before the first semester starts (Ishitani, 2008). If students can be identified early, effective interventions can be performed and assistance can be offered to students in need. Some studies even propose the development of longitudinal behavior models as a way to help predict when students will drop out of college (Ishitani, 2008). Another study examined the factor of student engagement related to performance and found that college students who were academically at-risk benefited most from increased engagement on campus (Carini, Kuh, & Klein, 2006). Students have concerns that are non-academic in nature and may benefit from more engagement and integration on campus. Some of these concerns include balancing personal and college life and worrying about how to pay for college (Kuo, Hagie, & Miller, 2004). Studies like these show the importance of identification of at-risk students and the impact that interventions have on student retention.

### **Research Purpose and Research Questions**

The purpose of this study was to determine if a model could be developed that would help institutional staff identify at-risk students. This study proposes developing a model using institutional data as well as data obtained from the Beginning College Survey of Student Engagement (BCSSE). The following are research objectives and questions for this study (the variables identified were based on Bean's (1981) model:

1. What are the characteristics of the students who completed the Beginning College Survey of Student Engagement at a regional, 4-year, public university who were members of the incoming freshman class between 2010 and 2012 based on the following variables:
  - Ethnicity
  - Full-time/part-time status

- Gender
  - Expected working hours
  - Expected grades in first year
  - Intention to graduate from institution
  - Parental degree attainment
  - First-generation student status
  - ACT score (highest composite)
  - High school grade point average (GPA)
  - Residential student status
2. What are the characteristics of students who completed the BCSSE survey each year between 2010 and 2012 compared to students who did not complete the BCSSE survey based on the following variables:
- Ethnicity
  - Full-time/part-time status
  - Gender
  - First year earned hours
  - Residential student status
3. What are the characteristics of students who were at-risk and who were not at-risk based on GPA as described on the following variables:
- Ethnicity
  - Full-time/part-time status
  - Gender
  - ACT score (highest composite)

- First year earned hours
  - Residential student status
  - BCSSE completion (did or did not complete survey)
4. Is there a statistically significant difference between students who completed the BCSSE as compared to those who did not complete the BCSSE on the following variables:
- First year GPA
  - ACT score (highest composite)
5. Can a regression model be developed that will help identify potential at-risk students using responses and scales from the BCSSE instrument, student data, and students' academic performance as measured by GPA after the first academic year?

### **Significance of the Study**

This study will contribute to knowledge of how results from the BCSSE instrument can be used as a tool for advisors and faculty in identifying at-risk students based on student populations at an institutional level. This study presents an opportunity to examine the usefulness of a model of analysis that can be used by institutions that administer the BCSSE survey to their freshmen. The development of a significant prediction model offers many benefits to institutions. In many cases, the BCSSE instrument is administered either right before or right at the beginning of a student's first semester in college and results are available soon after administration. If BCSSE variables could be used as potential identifiers of at-risk students, then interventions can be made and students can be assisted early in their first semester, possibly before they become at-risk of failure or dropping out. If at-risk students could be identified early, assistance can be offered, the student is retained, and the benefit to the university is increased retention. Many studies have examined the effectiveness of retention programs and

have found that most retention programs are based on sound, best practices and have positive impacts on student retention (Valentine *et al.*, 2011). If students can be identified early enough to get into a retention program, the students and the institutions both reap the benefits.

### **Limitations**

Completing the BCSSE survey is not an absolute requirement of all freshmen so there is a percentage of students who did not take the survey. The students were asked to voluntarily complete the survey during the first few weeks of their first semester. This limitation should be considered when analyzing the results of this study. Some of the variables available for analysis were collected for all students in the study, but only students who completed the BCSSE will have data for the variables acquired through the instrument.

### **Definition of Terms**

The following terms used in this study are listed below with their definitions as they apply to the research performed:

- **At-risk:** At-risk students are students who are academically underprepared and/or supported and are in danger of failure or dropping out (Vivian, 2005). For the purposes of this study, an at-risk student was defined as a student who has earned a GPA below what is acceptable for good standing at the institution in this study. The GPA measurement designated as at-risk for this study was a GPA below 2.0.
- **Academic performance:** academic performance was defined as the cumulative total GPA measure after the student's first academic year.
- **Student success:** student success was defined as the cumulative total GPA measure after the first academic year which places a student on good standing at the institution in this study. The GPA measurement designated as good standing at the institution for this study is 2.0 or above.

- Retention: a student is retained when they return to an institution year after year (Roberts & Styron, 2010). The term retention was used in this study to describe the phenomena of a student with continued enrollment beyond their first year of college. Students who were not enrolled after their first semester were not included in this study, as they were not retained for one full academic year.
- Academic year: for the purposes of this study, an academic year was defined as the period of time between a student's first fall semester of enrollment through the end of the consecutive spring semester. GPA and earned hours were collected for students retained through their first year of enrollment and compared to BCSSE survey items.
- First-generation student status: for the purposes of this study, first generation student status was determined using parental degree attainment (BCSSE variable). Students who did not have at least one parent with a 4-year college degree were classified as a first-generation student.
- BCSSE: Beginning College Survey of Student Engagement.

## **CHAPTER 2: REVIEW OF LITERATURE**

“Strong academic advising programs signal an institution’s commitment to the success of its students” (Drake, 2011). Advising is about building relationships with students that foster success and help students until they reach their academic goals (Drake, 2011). Out of class interactions are important to student persistence as well as being an effective way for faculty and staff to assist students and identify those who may be at-risk of failure or dropping out (Drake, 2011). At-risk students are in need of this type of interaction because they are most likely to need assistance, but how does a faculty or staff member know if a student could be or has the potential to be at-risk? A large body of literature studying the factors used to identify at-risk students will be presented as the basis for this study. This chapter will examine the research supporting the importance of identifying at-risk students early in an effort to connect them to interventions that will help them be successful and remain in school. As will be illustrated by studies explained later, there are many reasons why identification of these students is important and there are just as many ways to identify them. This chapter will also examine research addressing the identification of potential explanatory variables for this study. Four main themes were present in recent literature studying the identification and retention of at-risk students: pre-college predictors of success, non-cognitive predictors of success, beginning college predictors of success, and institutional factors. These themes are presented later in this chapter, but first an overview of the literature supporting the importance of identifying at-risk students will be presented.

### **Importance of Identifying At-Risk Students**

Retention from the first-year to the second-year of college is a critical step in retaining students at a time when not attaining a postsecondary education is an issue for students as well as a social and economic issue (Miller, Janz, & Chen, 2007). It is important for institutions to



retain students because institutions suffer direct and indirect loss of revenue for each non-returning student (Miller *et al.*, 2001). These losses include loss of tuition revenue, loss of housing revenue, and loss of other student fees as well as revenue generated from retail sales, donations, and other indirect sources (Miller *et al.*, 2001). As a result of these losses, pressure is placed on recruiting staff to attract new students to recover these losses, but it is more effective and cheaper to retain the students already enrolled (Miller *et al.*, 2001).

A very large majority of students reported as they begin their college careers that they are determined to attain a college degree (Noel-Levitz, 2012). In the recent National Freshman Attitudes Report, the Noel-Levitz Corporation (2012) published findings of its College Student Inventory which was administered to over 94,000 entering freshmen in the fall of 2011. Over 95% of four-year public university students who responded to this survey indicated they “have a very strong desire to continue [their] education, and [are] quite determined to finish a degree” (Noel-Levitz, 2012). But according to the ACT report on college retention and persistence to degree rates, only about 54% of these students ever complete their degree (ACT, Inc., 2011). These findings leave administrators wondering where in the process are students getting lost and how can higher education administration and staff help these students. Higher education institutions seek to assist and retain as many students as possible, and are continually searching for ways to identify students who may be at-risk of failing or becoming drop-outs. By better understanding the factors that lead to academic difficulty institutions can develop and maintain programs and services that foster academic success (Indiana University, 2012).

Brock (2010) identified three areas of importance to student success that are in need of reform: “remedial education, student support services, and financial aid.” Examples of studies examining these factors will be presented later. Brock (2010) also examined several factors he

believed contributed to a greater need for institutions to give attention to the at-risk student. These factors included student demographics, institutional attendance, persistence, and completion, which were affected by the changing landscape of higher education in the last forty-five plus years (Brock, 2010). It was a change in those factors that have led to a new demographic of student present in today's institutions of higher education (Brock, 2010). Brock (2010) believed changes in higher education policies and practices could lead to improved attendance, persistence, and completion. Some studies reported that the need for services differed among student subpopulations and that some student subpopulations were less likely to seek out services when needed (Noel-Levitz, 2012). Effective programs can be built around the needs of these subpopulations to assist students and engage them on campus, which would in turn help retain them (Noel-Levitz, 2012). Identifying these subpopulations and their differences can help institutions target interventions for at-risk students that meet the specific needs of each student group (Noel-Levitz, 2012).

Clark (2005) examined the challenges that face students in transition from high school to college in an effort to help identify strategies developed by students to aid them in the transition. Clark's (2005) study reported on data collected by means of interviews at a public, four-year, college in a large city in the east. This study included a group of traditional-aged college students who were in their second semester of their freshman year (Clark, 2005). Through this study, Clark (2005) identified several strategies developed by students as a means to overcome challenges in many areas of their academic and personal lives. These challenges included challenges with classes, professors, responsibilities, studying, relationships, and peers (Clark, 2005). The results of this study help support identifying at-risk students because Clark (2005) found that most students devised their own strategies when faced with obstacles. In some cases,

these strategies were positive and brought the students closer to success like using goal setting techniques and pursuing academic assistance in the form of tutoring services and other resources (Clark, 2005). On the other hand, some of the students in Clark's (2005) study developed strategies that were negative like withdrawing from class activity and becoming hesitant to ask instructors for help.

Other studies have shown that mentoring and regular meetings have had positive impacts on students' academic performance and attitude towards college (Vivian, 2005). Vivian mentored 12 at-risk students for one semester and when compared to a control group of 31 other students with similar characteristics, 83% of the students who were mentored saw improvements in GPA and all of them were retained. Among the students who were not mentored, only 32% had increased GPAs and only 71% were retained after the semester in which they were mentored (Vivian, 2005). Vivian suggests that by developing a basic approach to mentoring, faculty and staff can assist students and affect positive change. In this case, the at-risk students were helped by having someone who could be available to talk to on a regular basis and be a resource when needed. Vivian (2005) also suggests that faculty and staff do not need extensive and well-developed mentoring programs to be helpful, they just need to make contact with students identified as at-risk and offer a helping hand.

The success of other intervention programs and strategies has been studied, specifically in the area of tutoring as a support strategy for at-risk students (Rheinheimer, Grace-Odeleye, Francois, & Kusorgbor, 2011). A 2011 study found significant positive relationships with retention and academic performance and tutoring for educationally disadvantaged students (Rheinheimer *et al.*, 2011). These findings were the result of a longitudinal study of 129 at-risk students participating in support services for economically and educationally disadvantaged

students (Rheinheimer *et al.*, 2011). This research used ex post facto methods to assess the impact of tutoring on retention, persistence, and graduation on a group of students tracked as a cohort for three years (Rheinheimer *et al.*, 2011). Variables studied included total number of courses for which the students received tutoring, student's GPA, total number of credits earned towards graduation, and graduation status (Rheinheimer *et al.*, 2011). The study found the students in the program who participated in tutoring were 13.5 times more likely to graduate than those who were not tutored (Rheinheimer *et al.*, 2011). The authors of this article suggest further study into the effects of tutoring on persistence, but point out that tutoring can be an effective strategy for helping at-risk students persist to graduation (Rheinheimer *et al.*, 2011).

Another important factor affecting institutions of higher education comes in the form of funding policies based on student completion and retention rates. It is becoming ever more important for institutions to retain as many students as possible and to graduate them in a timely manner to ensure a continued level of funding from their state government. New policies in the state where this study was conducted have been enacted that affect the amount of funding received based on student completion and retention. Recent legislation was established to help postsecondary education institutions increase effectiveness and efficiency by allowing them some limited operational autonomy if they meet measurable performance objectives aimed at improving college completion (State of Louisiana Board of Regents, 2012). As part of this legislation, institutions must enter into agreements with the state board of regents, which determine an institution's goals for progress and an improvement plan. This legislation has a proposed increase of 7% in the statewide graduation rate by the year 2016 (State of Louisiana Board of Regents, 2012). Performance objectives cover areas across institutional functions and include goals for graduation rate increases, more program completers at all levels, partnerships

with high schools to increase college readiness, referrals of students to community colleges, expanded educational offerings through distance education, among other objectives (State of Louisiana Board of Regents, 2012). There are 52 measures in all that are tracked by the state governing board (State of Louisiana Board of Regents, 2012). Legislation such as this places increased pressure upon higher education institutions to retain students until graduation. One way to help retain and graduate students, especially if they are at-risk of failing or dropping out, is to find ways to identify them early and perform successful interventions that assist them to graduation.

Studies have been conducted that examine the effect of state funding on completion rates at institutions across the country (Titus, 2009). Titus (2009) explained in his study that many states have restructured funding policies based on performance and these new policies have had effects on degree completion. One finding of this recent study, including 49 states over a 12 year period, was that the amount of state need-based funding awarded to students had a positive impact on the production of bachelor's degrees (Titus, 2009). This state need-based funding included state financial aid programs and helped students with tuition costs, which also provided revenue for the institutions (Titus, 2009). Titus (2009) also found that the production of bachelor's degrees within a state was positively related to the state appropriations to the institutions of higher education. The results of this study cautioned state policy makers to carefully consider the role of state financial support to higher education (Titus, 2009). Studies like this one illustrate a need for state funding, but with state funding policies based on performance and student completion, institutions are looking for ways to assist and retain as many as possible in order to ensure funding.

## **Potential Identifiers of At-Risk Students: An Examination of the Variables**

Several themes appeared in the literature about using different factors as predictors of success for college students. These themes presented four main areas of explanation: pre-college predictors of success, non-cognitive predictors of success, beginning college predictors of success, and institutional factors as predictors of success. Each of these themes are presented along with variables from their respective studies as they relate to the theoretical framework of this research. Among the many demographic and academic variables included in recent studies there have appeared similar patterns of findings. Included in these measures are socioeconomic status, first-generation student status, gender, and ethnicity. Chen (2012) found that students of low socioeconomic status were more at-risk of dropping out than students from other levels of socioeconomic status. He also found that minority students (African American, Hispanic, and other) were found to be more likely to drop out of college in their first year (Chen, 2012). Brock (2010) discussed the changing demographic of the college student in the past forty years and stated that institutions must be responsive to the needs of today's students in order to retain them. His findings showed that adult students are a growing population in higher education as well as minority groups (Brock, 2010). Brock (2010) also discussed the emergence of a growing community and technical college system in addition to completely online schools that were not in existence several decades ago.

### **Pre-College Predictors of Success**

Pre-college predictors of student success have been commonly used as the basis for admissions decisions as well as placement into beginning college courses (Sawyer, 2007). Common predictor measures found in the research included ACT/SAT scores and high school GPA. Bean (1981) the theorist behind the Causal Model of Student Attrition, recommended pre-college variables in his predictor model. Some of the pre-college variables in his model

included parental educational attainment, high school grades, residential status, and achievement test scores (Bean, 1981). Other researchers have also built models for institutions to use in analyzing school data in an effort to predict success using pre-college measures (Sawyer, 2007). Sawyer (2007) studied ACT scores as predictors of success and found that by comparing completion rates after one semester and then again after one year of enrollment that about 25% of the students studied could be identified as at-risk. Through this study Sawyer (2007) developed a model for using ACT scores as predictors of success, but he cautioned schools to work at assessing the effectiveness of interventions and modify the prediction and interventions as needed.

Noble and Sawyer (2002) studied ACT score and high school GPA as accurate predictors of college achievement as measured by GPA after the first year of college. This study found that high school grades were more accurate predictors of college GPAs between the 2.00 and 3.00 levels than were ACT scores (Noble & Sawyer, 2002). High school grades, however, were not found to be accurate predictors of college GPAs above the 3.00 level and ACT scores were found to be more effective predictors of first-year GPAs at all levels (Noble & Sawyer, 2002). This study supports the continued use of standard academic achievement test scores, like ACT, because of the increased accuracy in predicting future achievement over high school GPA (Noble & Sawyer, 2002).

While it is an older study than most others mentioned here, Pascarella's (1984) is worth mentioning because he is one of the often cited theorists in student retention and success. His publication of a longitudinal model of student aspiration proposed that college input and background characteristics like high school achievement, parental educational level, and entering college aspirations have stronger direct effects on college aspiration than institutional

environments (Pascarella, 1984). Pascarella (1984) found that after analysis, his model explained between 24% and 34% of the variance in educational aspirations measured at the end of the second year of college and that college input and background characteristics had the greatest direct effects on aspirations. College environment measures and college achievement measures were also found to have significant effects on aspirations, but they were not as significant as the pre-college and background factors theorized (Pascarella, 1984).

In 2007 Miller, Janz, and Chen studied pre-college academic preparation and its effects on the first-to-second-year retention of two cohorts of new freshman at a mid-sized public university. The three factors used to determine pre-college academic preparation were high school class rank in percentiles, ACT composite score, and the number of pre-college course credits completed (Miller *et al.*, 2007). In this study, using the factors listed above, the students were classified as either low, mid, or high in levels of pre-college academic preparation (Miller *et al.*, 2007). After analysis, it was found that the effect for pre-college academic preparation on retention was significant; students who were classified as high and mid on the scale of pre-college academic preparation were retained at significantly higher rates than those classified as low on the scale (Miller *et al.*, 2007).

Gifford, Briceno-Perriott, and Mianzo (2006) studied ACT score and locus of control, as measured by results of the Adult Nowicki-Strickland Internal External Control Scale, to examine the accuracy of predicting academic achievement using ACT and locus of control scores. Their study included 3,066 freshman from the incoming classes of fall 2000 and fall 2011 (Gifford *et al.*, 2006). Academic achievement, the dependent variable, was measured by obtaining the students' GPA at the end of their freshman year (Gifford *et al.*, 2006). After analysis, it was found that freshman ACT scores accounted for more of the variance in GPA after the freshman



year than locus of control, while both predictors together accounted for seven percent of the variance (Gifford *et al.*, 2006). Both scales were found to have a positive relationship to academic achievement with students who had high ACT scores earning higher GPA's after their freshman year and students who had higher internal locus of control scores having higher achievement (Gifford *et al.*, 2006).

Vincent Tinto (1987) discusses using pre-entry screening as part of a larger retention program. He speaks of the usefulness of pre-admission screening measures such as ACT scores and other assessment efforts to help identify students as candidates for campus retention efforts (Tinto, 1987). He also offered words of caution because, as he explained, these procedures “weight the past at the expense of the future” (Tinto, 1987). Tinto (1987) explained that such procedures could hinder students who are “late bloomers” or who are not good test takers. He proposed that early contact with students is another good way to help identify students for inclusion in retention programs (Tinto, 1987). This contact along with using student data that has been found to have a relationship to student performance can increase the chances of placing the right students into the programs that will benefit them (Tinto, 1987).

### **Non-Cognitive Predictors of Success**

Some studies delve into predictors of success that have less to do with academic ability and more to do with other personal aspects of success such as integration, adaptation, and persistence. A recent study examined student success as measured by GPA and other enrollment factors as compared to an assessment of emotional intelligence (Sparkman, Maulding, & Roberts, 2012). Students in this study were given a 125 question instrument to measure emotional and social intelligence and their academic achievement was then measured five years later (Sparkman *et al.*, 2012). Variables measured included high school GPA, ACT score, cumulative GPA in college, gender, ethnicity, and first generation college student status

(Sparkman *et al.*, 2012). The results of this study indicated that the demographic most likely to graduate at that institution was white females and also found that first generation college students were likely to take longer to graduate than students whose parents had a college degree (Sparkman *et al.*, 2012). This finding coincides with the recent Noel-Levitz (2012) finding that female entering freshmen reported better attitudes about academic engagement. Among the emotional intelligence factors measured, social responsibility was found to be a strong predictor of graduation (Sparkman *et al.*, 2012). As a concluding remark, the authors of this study explain that emotional intelligence scores can improve with time and training and that institutions can help retain students by using these scores to develop activities, both curricular and extra curricular, to encourage growth in emotional intelligence (Sparkman *et al.*, 2012).

In line with emotional intelligence factors as predictors of success, some studies have examined personality traits as another non-cognitive predictor of student success (Laskey & Hetzel, 2011). One recent study used the NEO-FFI Five Factor Inventory to measure personality factors as related to student success (Laskey & Hetzel, 2011). This inventory produces measurements in five different areas of personality: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Institutions can use these personality profile results to identify at-risk students and connect them to services that enhance student success and retention (Laskey & Hetzel, 2011). Laskey and Hetzel (2011) studied students in a conditional acceptance program over three consecutive years by using the five-factor inventory compared to academic and demographic information. They also sought to answer the question: “Do high school GPA and/or ACT scores predict college success?” (Laskey & Hetzel, 2011). This study found positive relationships between the personality traits conscientiousness and agreeableness to the use of tutoring services on campus and also found positive relationships between neuroticism and

college GPA (Laskey & Hetzel, 2011). In this particular study neither high school GPA nor ACT scores were found to be a good predictor of success for students in the conditional acceptance program (Laskey & Hetzel, 2011). The strongest predictors of success in this study were factors related to personality; non-cognitive predictors of success (Laskey & Hetzel, 2011).

First generation college students have also been studied as a group of students potentially in danger of dropping out. One study examined two important aspects of the college experience that play a major role in the retention of first generation college students (Pike & Kuh, 2005). In this study, 3,000 undergraduates and their responses to a college experience questionnaire were examined on some demographic characteristics as well as precollege educational goals and characteristics of college attendance (Pike & Kuh, 2005). The findings of this study showed that first generation college students reported lower levels of student engagement than their peers who had at least one parent with a college degree (Pike & Kuh, 2005). The first generation students also reported that they perceived the college environment as less supportive to learning and intellectual development (Pike & Kuh, 2005). Positive relationships were found with residential status; first generation students who lived on campus had higher levels of student engagement and had greater gains in intellectual development (Pike & Kuh, 2005).

Degree program satisfaction is among other non-cognitive predictors of success studied in recent years (Suhre, Jansen, & Harskamp, 2007). Researchers supported studying degree program satisfaction as a predictor of attrition because satisfaction is likely to be affected when students' expectations of degree programs are not met (Suhre *et al.*, 2007). Degree program satisfaction was described as being the "fulfillment of expectations regarding the content of the degree program and the required study activities" (Suhre *et al.*, 2007). The researchers theorized that degree program satisfaction would have a significant effect on a student's decision to drop

out (Suhre *et al.*, 2007). Among other variables, degree program satisfaction was found to explain 31% of the between student variance in dropout (Suhre *et al.*, 2007). Degree program satisfaction also indirectly affected students' academic integration, study progress, and study habits; all factors that contribute to success and that were enhanced by students having positive and fulfilling expectations of their degree program (Suhre *et al.*, 2007).

Along the same lines as degree program satisfaction, choice of college major have been studied as a factor impacting persistence among freshmen (Leppel, 2001). Leppel's (2001) study included over 3,000 students enrolled in bachelor's degree programs in six categories of majors including business, engineering, education, health, arts and sciences, and undecided. These students were examined based on their persistence from their first year of college to their second year (Leppel, 2001). In all but one of the categories of majors studied, students persisted at a rate above 90%; the "undecided" majors of both genders only persisted at a rate of 77.5% after their first year of college (Leppel, 2001). Females in health majors were most likely to persist among all majors and both genders, having a 97.46% persistence rate in the study (Leppel, 2001). Among the males, students in the arts and sciences majors were the most likely to persist, having the highest persistence rate among males of all majors at 93.43% (Leppel, 2001).

### **Beginning College Predictors of Success**

In recent years, several new programs and survey instruments have been used to assess students as they begin their first year of college. These programs and instruments seek to assess more than academic achievement; they ask questions about attitudes, expectations, intentions to participate, and other demographic information not commonly collected upon admission. Some of these instruments ask students about their study habits, employment intentions while in college, and high school information. In some cases, these results are compared to another assessment after the first year or beyond, as is the case for the Beginning College Survey of

Student Engagement and the National Survey of Student Engagement. These findings help institutions gain more knowledge about their incoming and continuing students.

Student perceptions have appeared in studies as potential identifiers of students at-risk of leaving an institution. One study used a questionnaire about student perceptions, satisfaction, and persistence and examined the potential responses as identifiers of at-risk students (Roberts & Styron, 2010). In this study, it was found that students who were not retained in subsequent semesters had responded with lower levels of engagement and perceived lower levels of faculty approachability than those students who were retained (Roberts & Styron, 2010). Other areas studied included student perceptions of academic advising, business procedures, learning experiences, and social connectedness (Roberts & Styron, 2010). The students who were not retained had also responded to the study with lower levels of perceived social connectedness than retained students (Roberts & Styron, 2010). The researchers in this study advocate for programs like learning communities and enhanced advising services in an effort to prevent students from having low perceptions of social connectedness and faculty approachability (Roberts & Styron, 2010).

Morrow and Ackermann (2012) performed a study to measure motivation and belonging and examined their effects on retention of students from their first year to their second year. In this study, belonging and motivation were measured by scales of belonging, and academic attitudes and persistence were measured with a survey question about their intention to graduate (Morrow & Ackermann, 2012). Faculty support as well as peer support was found to be positively related to intending to receive a degree from the university (Morrow & Ackermann, 2012). Among the significant predictors of first to second year retention was personal development, students who perceived personal growth and development in their first year of

college were more likely to return for their second year of study (Morrow & Ackermann, 2012). The researchers in this study encouraged further study into motivation as a factor in predicting retention because their findings did not produce significant results (Morrow & Ackermann, 2012). This conclusion has merit because other studies cited in this review have found that student motivation can be a factor in predicting retention of students who may be at-risk of dropping out.

Several recent studies have examined the concept of using grades in first-year seminar courses as predictors of success and retention. These courses have been targeted for study because they offer students extensive information about the institution and facilitate a successful transition to college life (Hyers & Joslin, 1998). Hyers and Joslin (1998) proposed that first-year seminar grades were better predictors of achievement and persistence than high school grades and ACT scores. Their study hypothesized that the first-year seminar grade would be a more meaningful predictor variable because of the important academic components in the first-year seminar course (Hyers & Joslin, 1998). The reason for this hypothesis centered on the first-year seminar course content that Hyers and Joslin (1998) believed impacted persistence and retention. The first-year seminar course as the focus of this particular study included factors such as a common course syllabus, common objectives and activities, and all course instructors served as the principal academic advisor for the group of students in their classes (Hyers & Joslin, 1998). This study resulted in the authors suggesting that students who earned Cs or lower in a first-year seminar course are more likely to drop out, strengthening the argument that first-year seminar grades could be used as identifiers of at-risk students (Hyers & Joslin, 1998).

Lang (2007) also studied a first-year experience course and found that students who successfully completed such a course persisted at higher rates than students who did not

complete or even participate in a first-year course. Lang (2007) advocated for first-year experience courses because these courses helped students transition to college successfully regardless of a student's academic potential or background; essentially these courses leveled the playing field and gave all students a positive experience when starting college. In his study, Lang (2007) examined first-year experience course participants versus non-participants and hypothesized that first-year experience course completers would have higher GPAs and more accumulated earned hours than non-participants. The two groups studied were found to be similar in characteristics and academic potential (Lang, 2007). The experimental group contained the students who were participating in a first-year experience course and the control group contained students who were not enrolled in a first-year experience course (Lang, 2007). This study found that completers of the first-year experience course performed almost the same academically as non-participants, but the first-year course completers were more likely to persist than the non-completers (Lang, 2007). The author of this study encouraged institutions to require students to enroll in a first-year experience course because of the apparent positive impacts on persistence (Lang, 2007).

In addition to studying pre-college predictors of retention and success Miller, Janz, and Chen (2012) studied the effects of participation in a first-year seminar course on retention of two cohorts of students from their first-to-second-year of college. In studying both cohorts of students, comprised of the entire freshman classes of study years, it was found that participants in first-year seminar courses were retained at higher rates than non-participants (Miller *et al.*, 2007). In this study, it should be noted that students were not required to participate in such a course, but were encouraged to enroll in this course by advisors, admissions counselors, and other staff (Miller *et al.*, 2007). Upon examination, the researchers found no significant

differences between the participant and non-participant group on demographic factors but did find academic factors that differed favored the non-participants (Miller *et al.*, 2007). Regardless of the differences, findings support the conclusion that students at all ability levels benefited from participation in a first-year seminar course (Miller *et al.*, 2007).

### **Institutional Factors**

Institutional factors have also been examined in an effort to explore those factors as predictors of success. Chen (2012) studied institutional factors related to student dropout rates over time and found that increased institutional level expenditures on student services resulted in decreased chances of student dropouts. Chen's (2012) findings also support increasing funding for student services by showing that students with higher levels of social and academic integration had lower chances of dropping out as well. Colleges that placed student services as a priority on their campuses had lower odds of student dropouts (Chen, 2012). Webster and Showers (2011) also studied institutional factors as related to retention rates and found that positive relationships exist between faculty salary and mean dollar amount of aid in relation to student retention. Student retention was increased at institutions that placed emphasis on personal attention to students as evidenced by the negative relationship between student/teacher ratio and retention (Webster & Showers, 2011). This study suggests that certain institutional characteristics can promote retention if students are properly identified as at-risk and then offered assistance with programs developed to be impactful (Webster & Showers, 2011).

One recent study sought to discover impacts on student persistence at four-year institutions by using student-level and institution-level variables from 367 institutions in the U.S. and included 4,951 students (Titus, 2006). The main focus of this study was to examine the impact of environmental and financial variables on the dependent variable, persistence (Titus, 2006). Persistence, as defined in this study, was the enrollment of a student or degree attainment



three years after the first enrollment at a four-year institution (Titus, 2006). One of Titus's (2006) research questions proposed that revenue patterns could explain differences in the chance of student persistence at four-year institutions. Another research question sought to discover if an institution's internal expenditure patterns influenced student persistence (Titus, 2006). As a result of his analysis, Titus (2006) found that after taking student and institutional-level variables into account that there were positive relationships with institutional revenue and expenditures on student persistence.

### **Summary of Research Literature**

As stated in the section on significance, this study will contribute to knowledge of how the BCSSE instrument can be used as a tool for advisors and faculty to identify at-risk students based on student populations at an institutional level. This study presents an opportunity to examine the usefulness of a model of analysis that can be used by institutions that administer the BCSSE survey to their freshmen. Many studies have examined the effectiveness of retention programs and have found that most retention programs are based on sound, best practices and have positive impacts on student retention (Valentine *et al.*, 2011). If students can be identified early enough to get into a retention program, the students and the institutions both reap the benefits. Previous studies have demonstrated the significance of certain possible predictor variables of student success, but none of them examined the variables as they are produced by the BCSSE survey. The significant studies presented in the review of literature and the possible predictor variables that resulted from the studies are presented in Table 1.

While all of these studies present impactful results and possible predictor variables that can lead to the identification of at-risk students, they do not address the main concern of this study; to use the BCSSE to determine these variables.

Table 1. Summary of Research Reporting Possible Predictor Variables to Student Success

Source	Ethnicity Minority (M)	Test Scores	Services	High School GPA	State Funding	Aspirations	College GPA	FY Seminar	Gender (Female- F or Male-M)	Parent Education
Chen, 2012	M/N		P		P		P	P		
Clark, 2005			P							
Gifford <i>et al.</i> , 2006		P								
Hyers & Joslin, 1998								P		
Lang, 2007								P		
Laskey & Hetzel, 2011		None		None						
Marsh <i>et al.</i> , 2008								P		
Miller <i>et al.</i> , 2007				P				P		
Noble & Sawyer, 2002		P		P						
Noel-Levitz, 2012			P			P			F/P	
Pascarella, 1984				P		P	P			P
Pike & Kuh, 2005										P
Rheinheimer <i>et al.</i> , 2011			P							
Sawyer, 2007		P								
Schuh, 1999		None		None						
Sparkman <i>et al.</i> , 2012	M/N	P		P					F/P	
Titus, 2006					P					
Titus, 2009					P					
Vivian, 2005			P							
Webster & Showers, 2006					P					

NOTE:

“P” indicates a positive relationship between possible predictor variable and student success

“N” indicates a negative relationship between possible predictor variable and student success

“None” indicates no relationship found between possible predictor variable and student success

### **Deficiencies/Limitations in Literature**

Among the literature collected for this study, there were a limited number of studies that addressed the variables identified in the Beginning College Survey of Student Engagement (BCSSE) or that studied the BCSSE survey itself. There were no studies found that examined the BCSSE survey at an institutional level in an attempt to identify at-risk students using this instrument. The studies that were found containing BCSSE information were studies done about the relationship of the BCSSE to its complementary survey, The National Survey of Student Engagement (NSSE). At the particular institution where this study was conducted, the BCSSE is offered to a large number of students at the beginning of their first semester and the complementary NSSE is only offered to about 100 students at the beginning of their second year. The main goal of this study was to find relationships between BCSSE variables and academic performance in an attempt to identify students at-risk of dropping out or failing. There is a lack of current literature addressing this issue using the BCSSE instrument.

### **Theoretical/Conceptual Framework for the Study**

Bean's Causal Model of Student Attrition was used as a framework for this study. This model identifies four classes of variables used in predicting student attrition (Bean, 1981). These variables all have direct or indirect effects on intent to leave, which Bean (1981) explains, is the precursor of dropping out. Some of the variables include achievement test scores, grades, job, confidence, and educational goals (Bean, 1981). Many studies have been conducted using Bean's model as a framework in addition to other well-known models of student attrition. Bean's model will be explained in more detail later in this section after a presentation of literature using Bean's model and other related models.

Strauss and Volkwein (2004) used theoretical models for their study including Bean's model as well as other models built on Bean's work. These researchers studied influences on

student institutional commitment by examining data including student-reported demographics and campus experiences (Strauss & Volkwein, 2004). Institutional commitment was defined as “a student’s overall impression of, sense of belonging to, satisfaction with, and choice to attend the institution again” (Strauss & Volkwein, 2004). The dependent variable for this study was institutional commitment, in essence, the student’s intention to remain at the university and be retained (Strauss & Volkwein, 2004). Among the independent variables in this study related to Bean’s model are social integration, financial aid, academic integration, and academic growth as well as demographic factors and pre-college characteristics (Strauss & Volkwein, 2004). Variables that resulted in significant effects and were part of the final model include academic integration, academic growth, faculty interaction, social integration, and social growth (Strauss & Volkwein, 2004). All of these variables can be found in Bean’s (1981) model.

Bean (1981) used models of student attrition to synthesize his own model; one of the models used was Tinto’s model of student departure. One researcher used Tinto’s model to study factors that affect the success and retention of sophomores (Graunke & Woosley, 2005). Students in this study were administered a survey about how their college experiences and attitudes affected their academic success (Graunke & Woosley, 2005). GPA was the dependent variable and was measured on demographic variables as well as academic experience factors and attitudinal factors (Graunke & Woosley, 2005). Only two academic attitudes and experiences variables proved significant to student success in this study; commitment to major and faculty and staff interactions (Graunke & Woosley, 2005).

Titus (2006) used Bean’s model of student attrition to construct a recent study. Titus (2006) examined background, integration, satisfaction with the institution, attitudes, and environmental factors to study the effects of financial factors on student persistence. Titus

(2006) explained that he chose the variables guided by Bean's model because there was empirical validation of Bean's attrition model by researchers using the student as the unit of analysis. The results of this study did find positive relationships between institution expenditure and persistence (Titus, 2006).

Another study building on Bean's classification of variables used student characteristics and attributes available to institutions to develop a model for analysis of these variables to identify possible at-risk students (Singell & Waddell, 2010). This study examined the possibility of identifying at-risk students using these variables because the authors believed that institutions in tight budget situations would be better off pooling resources and targeting those students who were classified as high risk instead of attempting retention programs targeted at all students (Singell & Waddell, 2010). Singell and Waddell (2010) also encouraged practitioners to not only identify those students at-risk of dropping, but to try to identify at-risk students who were most likely to be receptive to intervention programs. The reason for this recommendation, according to Singell and Waddell (2010), was that students in the highest risk categories were more likely to remain at-risk for their educational careers; their leaving in most cases was inevitable. These researchers studied data readily available to institutions including gender, high school grades, SAT scores, ethnicity, age, residential status, and financial aid eligibility (Singell & Waddell, 2010). This study included a cohort of students studied for six years who were part of the fall 2011 incoming first time, full-time freshman class at a large university with a six-year graduation rate of about 60% (Singell & Waddell, 2010). After an analysis of graduation probabilities, the researchers found that students who could be predicted as at-risk of not returning for their second year were the least likely to graduate (Singell & Waddell, 2010). The researchers presented a good model, built partially by following Bean's previous work on student

attrition, which verifies certain student attributes which could be studied to identify potential at-risk students (Singell & Waddell, 2010). These analyses, the authors suggest, could even be used to guide admissions processes because the analyses can be conducted with data known about a student during the application process (Singell & Waddell, 2010). Singell and Waddell (2010) conclude that students can be possibly identified as at-risk early enough in their academic career for faculty and staff to perform interventions and help students be retained.

### **Bean's Causal Model of Student Attrition**

As Bean so accurately stated in his 1981 synthesis of a theoretical model of student attrition: “theory guides research, and prevents either the reinvention of the wheel or analysis of variables which show little potential for explaining the attrition process.” Bean (1981) used theoretical frameworks and models from educational, psychological, and sociological literature to construct his Causal Model of Student Attrition. Bean (1981) examined studies of student attrition, student participation, status attainment, turnover in work organizations, research on suicide, and research on the relationship between intent and behavior to construct his new model of student attrition. He used the perspective of a single student at a single institution representing the kind of information an institution would have to know about itself, and its students, to be able to identify students with a high potential of dropping out (Bean, 1981). Bean (1981) built on the work of Durkheim (1951) who studied suicide, Spady (1970) who studied the dropout process, Rootman (1972) who studied adult socialization, Sewell and Hauser (1972) who studied status attainment, Bashier (1973) who studied adult participation and dropout, Tinto (1975) who studied student attrition, Price (1977) who studied turnover in work organizations, Fishbein and Ajzen (1975) who studied intentions influencing behavior, and Pascarella (1980) who studied student/faculty contacts.

Bean (1981) synthesized his model from these existing theories and models to allow institutions to identify students who were likely going to drop out given that the institution could gain certain information about a student that were among the known variables related to attrition. Bean's (1981) model identified four classes of variables: background variables, organizational variables, environmental variables, and attitudinal and outcome variables. Bean (1981) explained that the variables contained in the categories all have either direct or indirect effects on intent to leave, which Bean used as a fifth level of variable directly affecting attrition. The intent to leave, Bean (1981) believed, was the precursor to dropping out and institutions could add or delete variables from the model depending on its needs. Bean (1981) explained that the classifications of variables could be applied to the model at different phases of analysis.

Background variables preceded the student's interaction with the organization and represent facts about students before entering college and generally contributed little to the explained variance of dropout when information is known about the other three classes of variables: organizational, environmental, and attitudinal (Bean, 1981). Some examples of background variables included parent's educational attainment, high school grades, achievement test scores, and college preparatory curriculum (Bean, 1981). Bean (1981) stipulated that background variables should include only objective information about a student that is measured before matriculation into an institution of higher education.

Organizational variables represented a student's interaction with the institution and included structural variables, which can be administratively manipulated from within an institution (Bean, 1981). An example Bean (1981) used to illustrate organizational variables is informal contact with faculty. If an institution found that informal contacts with faculty members resulted in reduced attrition then these contacts could be encouraged or required of

faculty (Bean, 1981). Other examples of organizational variables included helpfulness of advisors, university services used, housing status, financial aid, employment of student, involvement in organizations, and availability of preferred courses (Bean, 1981). Organizational variables should include only variables that could be verified about a student by observing a student or using a student's record (Bean, 1981).

Environmental variables are variables over which the institution has little or no control and which may directly influence dropout (Bean, 1981). These variables addressed a set of circumstances that may attract a student away from an institution; on to other opportunities (Bean, 1981). Environmental variables focused on factors outside of the educational institution (Bean, 1981). Examples of environmental variables included the opportunity to transfer to another institution, the opportunity to secure employment, family approval or disapproval of the institution or major, difficulty of financing school, and family responsibilities (Bean, 1981). For inclusion in the causal model, Bean (1981) suggested that environmental variables should include objective and subjective assessments of variables not directly associated with the institution or its members. These assessments should be relevant to the student's decision to remain in school (Bean, 1981).

Attitudinal and outcome variables are a subjective interpretation of the objective educational experience (Bean, 1981). These variables included educational outcome variables as well as personal variables and attitudes (Bean, 1981). Most of the attitudinal and outcome variables had more significant relationships with intent to leave over the likelihood of dropping out (Bean, 1981). Bean (1981) explained that these represent the psychological results of a student's interaction with an institution. Examples of attitudinal and outcome variables include student satisfaction, student self-development, confidence, adjustment, institutional commitment



(a student's loyalty to a particular institution), certainty of choice of major, and educational goals (Bean, 1981). Bean (1981) proposes the following variables for statistical control: age, ethnicity, year in school (classification), full-time/part-time status, transfer/non-transfer status, and gender.

Bean (1981) provides a comprehensive list of possible variables to be included in analyses on attrition. This list can be found as an appendix of his 1981 paper explaining the synthesis of this theory. Bean (1981) also explained that variables could be added and removed from the analysis as needed based on the information available to institutions. The variables in this study were selected by using Bean's theory as a guide. Bean's theory included four classifications of variables and the variables for this study were matched to Bean's variables in order to study predictors of student attrition. A diagram of Bean's Causal Model is included in Figure 1. Bean also classifies his variables as a way to indicate their placement into his theoretical model. Table 2 includes Bean's variables and their classifications. The variables marked with superscript are noted because Bean proposes them as more important predictors of success than the other variables.

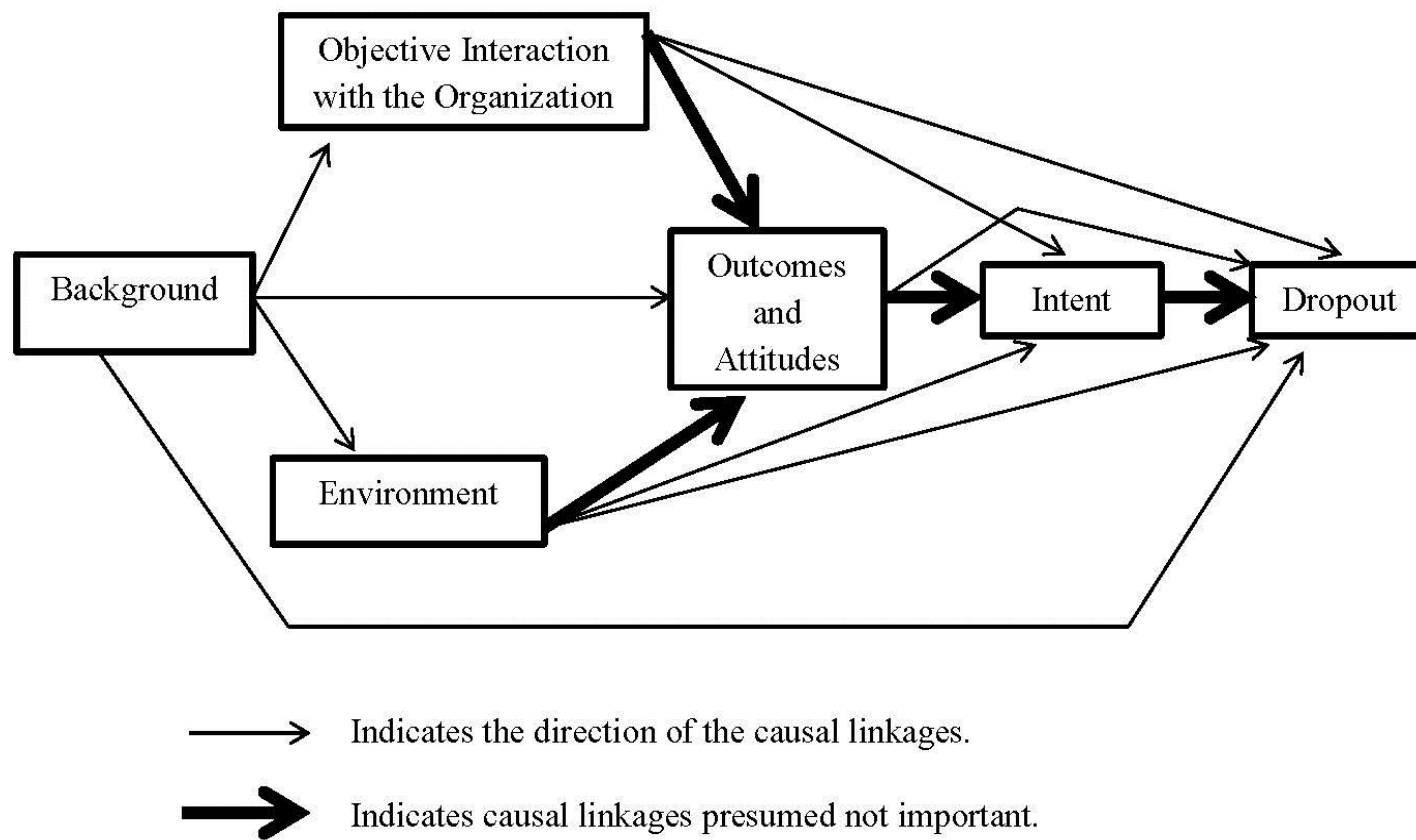


Figure 1. Diagram of Bean's Causal Model of Student Attrition

Table 2. Bean's List of Variables for Causal Model of Student Attrition

Background Variables	Environmental Variables	Organizational Variables	Outcome and Attitudinal Variables
Mother's Education <sup>a</sup>	Opportunity (transfer) <sup>a</sup>	Regulation of Life at School	Practical Value <sup>a</sup>
Father's Education <sup>a</sup>	Opportunity (job)	Repetitiveness at School	Institutional Quality
High School Grades <sup>a</sup>	Family Approval (Institution) <sup>a</sup>	Communication Policies	Self-Development
Achievement Test Scores <sup>a</sup>	Family Approval (major)	Close Friends <sup>a</sup>	Satisfaction
High School Size	Likelihood of Marriage <sup>a</sup>	Helpfulness of Advisor	Boredom <sup>a</sup>
Home Town Size	Difficulty in Financing School	Informal Contact with Faculty <sup>a</sup>	Confidence <sup>a</sup>
College Prep Curriculum	Military Draft	Grades <sup>a</sup>	Adjustment
Distance from Home	Economic Indicators	Decision Making	Certainty of Choice <sup>a</sup>
State Resident	Social Fads	Joining Campus Orgs <sup>a</sup>	Fairness of Treatment
Head of Household Occupation		Curriculum <sup>a</sup>	Competitiveness of Academics
Parent's Income		Housing	Loyalty to Institution <sup>a</sup>
Religion		Job	Major Certainty <sup>a</sup>
		Services Used	Occupational Certainty
		Peer Culture	Educational Goals <sup>a</sup>
		Leisure Activities	Absenteeism <sup>a</sup>
		Financial Aid	
		Discussed Leaving with Others <sup>a</sup>	

<sup>a</sup> Presented by Bean to have greater influence on dropout than other variables in the category.

## CHAPTER 3: METHODOLOGY

### Population and Sample

The target and accessible population for this study was all first-time freshmen at a small, regional, public university in the south who entered the university in the fall semesters of the years 2010, 2011, and 2012. The total number of valid cases of student data included 3,045 first-time freshmen from the given years. The total number of valid cases of Beginning College Survey of Student Engagement (BCSSE) for the given years of this study was 2,007, which represented 70.1% of the first-time freshmen from the given years of survey administration. First-year GPA was a critical measure in this study; therefore, any student who did not complete their first two semesters of enrollment was deleted from this study. In total, the number of students deleted from this study was 561: 224 from fall 2010, 149 from fall 2011, and 188 from fall 2012.

A breakdown of the student population included in this study is presented in Table 3. The total population of first-time freshmen is presented first then is followed by the number and percent of first-time freshmen deleted for non-completion of one year of enrollment or for having invalid data. Also included in Table 3 is the number of valid cases of student data.

Table 3. Student Data for Total Incoming Freshmen Population from Fall 2010-2012 at a Small, Regional, Public University in the South

Year	First-time freshmen enrollment	Deleted from study <sup>a</sup>	% Deleted from study	Valid cases of institutional data
2010	1218	224	18.3%	994
2011	1135	149	13.1%	986
2012	1253	188	15%	1065
Total	3606	561		3045

<sup>a</sup>Deleted from study for either non-completion of an entire academic year or for invalid data.

Student data was considered valid if it included a first-year GPA measure as well as complete demographic and enrollment data. If students had institutional data that were missing they were deleted from this study if the missing data were important variable measures in the study. Table 4 includes the numbers and percentages of students who completed the BCSSE survey in the selected years of this study as well as the number of cases of BCSSE data that were deleted from the study due to non-completion of the instrument. If students did not answer a sufficient number of BCSSE questions to result in the scale scores used in this study, they were considered invalid cases and deleted from the study.

Table 4. Beginning College Survey of Student Engagement Completion Rates from Fall 2010, 2011, and 2012 at a Small, Regional, Public University in the South

Year	First-time freshmen enrollment	BCSSE <sup>a</sup> completion rates		
		Total completers	Percent completers	Valid BCSSE
2010	1218	821	67%	659
2011	1135	913	80%	726
2012	1253	795	63%	622
Total	3606	2529		2007

<sup>a</sup> Beginning College Survey of Student Engagement

### Instrumentation

There were two primary instruments to collect data for this study: The Beginning College Survey of Student Engagement (BCSSE) and a researcher designed data collection form.

#### Beginning College Survey of Student Engagement

The BCSSE instrument is a survey of student engagement developed by the Center for Postsecondary Research at Indiana University and utilized by institutions across the United States. The BCSSE instrument is administered online and data from the instrument is sent to institutions by the BCSSE organization at the conclusion of the determined survey administration period at each institution. The BCSSE survey is intended to measure first-time college students' pre-college academic and co-curricular experiences as well as expectations about their first year

of college (Indiana University, 2012). According to BCSSE sources, the results may be used for retention, assessment, development, curricular decisions, advising, and program evaluation purposes (Indiana University, 2012). The BCSSE survey instrument used in this study is attached in Appendix A. Since the initiation of this study, the BCSSE organization has redesigned the instrument that is currently used nationally. The new version of the BCSSE was launched at the beginning of the fall 2013 academic year. All students in this study were administered the previous version of the survey. Permission was granted from the BCSSE organization to use survey results at the institutional level, as the results are the property of the institution after the survey is administered. Permission was also granted by the Office of Institutional Research at the institution where this study was conducted to use BCSSE institutional data.

In literature specific to use of the BCSSE instrument, few studies were presented in searches of popular educational and psychological databases. The studies that were found were usually studies of national BCSSE data either done by the BCSSE organization or by individuals associated with the organization. This instrument is used in schools nationwide but there is only a small amount of research using the BCSSE from an institutional standpoint. This presents a need to further study the BCSSE at the institutional level to provide practitioners with information and models for use with their own student populations. As a theoretical model upon which to build this research study, BCSSE survey items to be included in this study were identified using Bean's causal model of student attrition. This model identifies four classes of variables to be used in predicting student attrition (Bean, The synthesis of a theoretical model of student attrition, 1981). These variables all have direct or indirect effects on intent to leave, which Bean (1981) explains, is the precursor of dropping out. Some of the variables include

achievement test scores, grades, job, confidence, and educational goals (Bean, 1981). The variables selected using Bean's (1981) model include:

- Expected working hours
- Expected grades in first year
- Intention to graduate from institution
- Parental degree attainment
- Expected Academic Engagement Scale score
- Expected Academic Perseverance Scale score
- Perceived Academic Preparation Scale score
- High School Academic Engagement Scale score
- Expected Academic Difficulty Scale score

These variables were examined as part of research question 5 and related to student academic performance after their first year of college as measured by first-year GPA. The importance of measuring student performance by GPA can be supported by research literature, as indicated in Chapter 2. The variables listed above were selected from Bean's (1981) list of possible predictor variables and matched with selected BCSSE survey questions.

Incoming freshmen were administered the BCSSE survey in the first two to three weeks of their entry semester. The survey is completed online directly through the BCSSE website. The BCSSE organization collects the survey data and sends the raw data as well as an institutional data report to the Office of Assessment and Institutional Research at each institution which utilizes their services. Data was obtained from the BCSSE survey administrations from the fall semesters of 2010, 2011, and 2012 and was accessible in its raw and refined forms. Students were required to enter their student ID number when completing the BCSSE

instrument, this number was used to match the BCSSE results to the institutional student data. Relevant BCSSE institutional report data and discussions are included in the results and implications sections of this paper.

The BCSSE organization offered to researchers a confirmatory factor analysis of the first-year engagement indicators, some of the above mentioned scale scores are among the indicators used by BCSSE (Cole & Dong, 2013). These indicators were developed through a combination of individual item scores to create scale scores that the BCSSE organization had found as useful indicators for advising purposes as well as other intents (Cole & Dong, 2013). BCSSE reported Cronbach's *alpha* levels between .68 and .92 for all of the scales used as first-year engagement indicators (Cole & Dong, 2013). The scales used for this study all have Cronbach's *alpha* levels of at least .80 which are acceptable for confirmatory factor analysis (Hair *et al.*, 2010).

BCSSE compiles the first-year engagement scales as a way to communicate to advisors and other higher education professionals how to best use the results of the BCSSE instrument for student advising (Indiana University, 2012). The scales measure and present information to advisors on expected academic difficulty, expected academic perseverance, high school academic engagement, perception of academic preparation, and expected academic engagement in college (Indiana University, 2012). BCSSE offers a guide to advisors when student reports are disseminated so that higher education professionals can accurately interpret the results (Indiana University, 2012). Advisors can use the provided BCSSE advisor report to speak to students about areas that may possibly cause them difficulty in their upcoming academic careers (Indiana University, 2012).



## **Data Collection Form**

The researcher submitted a data collection form (Appendix D) to request student data from the Office of Assessment and Institutional Research. Student demographic and other data was obtained from the Office of Assessment and Institutional Research and matched to BCSSE survey data by student ID number. Data from all three years of BCSSE administrations was compiled into one data set for analysis. Names and other identifying information were deleted from the resulting data set for analysis purposes. Each student was given a unique identification number for the purposes of this study. There were minimal concerns for the accuracy of the data collected from both the BCSSE organization and the institutional research office; however the data was reviewed and checked for missing data. Due to the entrance requirements of the particular institution where this study was conducted, SAT scores were converted into ACT scores. The institution where this study was conducted did not require SAT scores for admissions and as a result, most incoming freshmen only submitted ACT scores. The conversion allowed the researcher to make like comparisons of this data as it was cited in the research literature as a possible predictor of student success. The ACT to SAT conversion chart that was used for this study can be found in Appendix E.

## **Data Analysis**

Data for this study was analyzed using descriptive statistics to present a general overview of the student population studied and to compare the group of students who completed the BCSSE to the group of students who did not complete the BCSSE. To explore the amount of variance in the dependent variable as explained by the independent variables a multiple regression analysis was used. Bean (1981) proposed multiple regression analysis for studies of this type because it best allowed for interpretation of effects where they may exist. Because his model contained a large number of variables, some of which may not have significant main

effects, Bean (1981) proposes that significant interactions may be found using stepwise multiple regression analysis.

Data was entered into SPSS from a Microsoft Excel spreadsheet after all data matching was completed. Student institutional data and BCSSE survey results were matched using student ID numbers. Student ID numbers were deleted and a unique, new identifying number was assigned to each student in the resulting matched data set. Student names were not included in any data set for this study. Prior to conducting data analysis, categorical variables were coded. Coding was completed when institutional data was received from the Office of Institutional Research and in consultation with that office.

### **ACT to SAT Conversion**

At the institution where this study was conducted students were required to submit ACT scores as part of their admission application. SAT scores were accepted as well, but the majority of students submitted only ACT scores. In some cases, students only submitted SAT scores. For the purposes of this study, a conversion chart was used (Appendix C) to calculate an equivalent ACT score from the combined SAT critical reading and math scores. For students presenting both ACT and SAT scores, an SAT to ACT conversion was done and either the highest composite ACT score or equivalent score was used for this study.

### **Research Question 1: Characteristics of Students Completing the Beginning College Survey of Student Engagement**

Research question 1 identified and described the characteristics of students who completed the BCSSE survey for the selected years of this study. All data was obtained in an Excel spreadsheet from either the original BCSSE data file or from the university Office of Institutional Research and matched by student ID number then entered into SPSS for analysis.

The categorical variables below were coded as listed below and described using frequencies and percentages:

- Ethnicity was coded in SPSS with the same numerical values used by the university from which the data was obtained. The variables were coded as follows: 1 for Asian, 2 for African American, 3 for Hispanic, 4 for Alaskan Native/American Indian, 5 for indicating two or more races, 6 for Native Hawaiian/Pacific Islander, 7 for race unknown, and 8 for White/Caucasian.
- Student status (full-time or part-time) was coded as indicating 0 for part-time status and 1 for full-time status. At the institution studied, students were considered full-time if they carried a minimum of 12 credit hours per semester.
- Gender was coded 1 for male and 2 for female.
- Intention to graduate from institution was a variable obtained from the BCSSE survey and coding in SPSS for this variable remained as reported from BCSSE. Intent to graduate was coded as 0 for not intending to graduate from institution or unsure of intent to graduate and 1 was used as intended to graduate from institution.
- Parental degree attainment was a BCSSE variable which was obtained by asking students about both their mother and father's degree attainment. The variables were listed separately, one for mother and one for father. The coding used for both the mother and the father's degree attainment remained as coded by BCSSE and was as follows: 1 for did not complete a 4-year degree, 2 for did complete a 4-year degree, and 9 for unknown.

- First-generation student status was gained from combining the mother and father's degree attainment variables and identifying those students who did not have a parent with a 4-year degree. Students were coded as 0 for not first generation, unknown/not reported, and 1 for first generation.
- Residential student status designated students in terms of their original residential status. 0 was used to code students who were out-of-state or international and 1 was used for in-state students.
- Expected working hours was a BCSSE variable and coding for this variable remained as reported by BCSSE and is as follows: 1 for 0 hours per week, 2 for 1-5 hours per week, 3 for 6-10 hours per week, 4 for 11-15 hours per week, 5 for 16-20 hours per week, 6 for 21-25 hours per week, 7 for 26-30 hours per week, and 8 for more than 30 hours per week.
- Expected grades in first year was another BCSSE variable and coding for this variable remained as reported by BCSSE and is as follows: 1 for C- or lower, 2 for C, 3 for C+, 4 for B-, 5 for B, 6 for B+, 7 for A-, 8 for A, and 9 for "grades not used."

Other characteristics measured as interval level variables were presented using means and standard deviations and were reported as listed below:

- ACT scores were reported as highest composite score earned. For students with a reported SAT score a conversion was used where total SAT was converted into a composite ACT score.
- First year GPA was reported as a numerical value between 0.000 and 4.000 using three decimal places.

For purposes of reporting residential, first-generation, and student enrollment status (full-time or part-time) data was reduced into a minimal number of categories. Residential student status was reported from the university Office of Institutional Research as a designation of a state of residence or a country code. To reduce the variable, students who resided in the state where the study was conducted were designated as in-state and students who did not reside within the state where the study was conducted or were international students were coded as out-of-state. First generation student status was reduced from the BCSSE variables of parental degree attainment. Both mother and father's degree attainment was reported and the first-generation variable was reduced from combining the two variables from the parental degree attainment to indicate if the student had at least one parent with a 4-year degree or did not have either parent attaining a 4-year degree. Student enrollment status was reported as a number of enrolled credit hours for the first semester of enrollment. The institution where they study was conducted classifies students as full-time as those who enrolled in a minimum of 12 credit hours per semester. Students carrying less than the 12 hour minimum were coded as part-time and those with 12 or more were coded as full-time.

### **Research Question 2: Characteristics of Students Completing the Beginning College Survey of Student Engagement Compared to Non-Completers**

Research question 2 identified and described the characteristics of students who completed the BCSSE survey for the selected years of this study as compared to the students who did not complete the survey on the following variables:

- Ethnicity
- Full-time/part-time status
- Gender
- First year earned hours

- Residential student status
- ACT score (highest composite)

All data was obtained in an Excel spreadsheet from either the original BCSSE data file or from the university Office of Institutional Research and matched by student ID number then entered into SPSS for analysis. The categorical variables listed below were coded as explained below. Data for the following categorical variables were described using frequencies and percentages.

- Ethnicity was coded in SPSS with the same numerical values used by the university from which the data was obtained. The variables were coded as follows: 1 for Asian, 2 for African American, 3 for Hispanic, 4 for Alaskan Native/American Indian, 5 for indicating two or more races, 6 for Native Hawaiian/Pacific Islander, 7 for race unknown, and 8 for White/Caucasian.
- Student status (full-time or part-time) was coded as indicating 0 for part-time status and 1 for full-time status. At the institution studied, students were considered full-time if they carried a minimum of 12 credit hours per semester.
- Gender was coded 1 for male and 2 for female.
- Residential student status designated students in terms of their original residential status. 0 was used to code students who were out-of-state or international and 1 was used for in-state students.

Other characteristics measured as interval level variables or higher were presented using mean, standard deviation, percentages, and range:

- First year earned hours
- First year GPA

- ACT Score (highest composite)

To test the differences between BCSSE completers and non-completers on the variables measured, independent samples *t*-tests and *chi-square* analyses were conducted. An alpha level of .05 was used for all statistical tests. *T*-tests were used to test the differences for variables measured at the interval level or higher and *chi-square* analyses were used to test the differences for variables in categories.

### **Research Question 3: Characteristics of Students Identified as At-Risk Compared to Students Classified on Good Standing**

Research question 3 described the group of students from the specified years who were identified as at-risk and those who were not identified as at-risk based on academic performance after their first year of enrollment as measured by GPA. The two groups of students were compared on the following variables.

- Ethnicity
- Full-time/part-time status
- Gender
- ACT score (highest composite)
- First year GPA
- First year earned hours
- Residential student status
- BCSSE completion (did or did not complete survey)

The categorical variables listed below were coded as listed below and were described using frequencies and percentages:

- Ethnicity was coded in SPSS with the same numerical values used by the university from which the data was obtained. The variable codes are as follows: 1

for Asian, 2 for African American, 3 for Hispanic, 4 for Alaskan Native/American Indian, 5 for indicating two or more races, 6 for Native Hawaiian/Pacific Islander, 7 for race unknown, and 8 for White/Caucasian.

- Student status (full-time or part-time) was coded as indicating 0 for part-time status and 1 for full-time status. At the institution studied, students were considered full-time if they carried a minimum of 12 credit hours per semester.
- Gender was coded 1 for male and 2 for female.
- Residential student status designated students in terms of their original residential status. 0 was used to code students who were out-of-state or international and 1 was used for in-state students.
- BCSSE completion (did or did not complete survey)

Other characteristics measured as interval level variables or higher were measured using means and standard deviations:

- ACT score (highest composite)
- First year GPA
- First year earned hours

All data was obtained in an Excel spreadsheet from either the original BCSSE data file or from the university Office of Institutional Research and matched by student ID number then entered into SPSS for analysis. The GPA measure of 2.000 was the point used to determine at-risk status. For the purposes of this study, an at-risk student was defined as a student who has earned a GPA below what is acceptable for good standing at the institution in this study. The GPA measurement designated as at-risk for this study was a GPA recorded as any measure



below 2.000. For the purposes of this description, students will be classified as either at-risk (GPA below 2.000) or good standing (2.000 GPA or above).

To test the differences between BCSSE completers and non-completers on the variables measured, independent samples *t*-tests and *chi-square* analyses were conducted. An alpha level of .05 was used for all statistical tests. *T*-tests were used to test the differences for variables measured at the interval level or higher and *chi-square* analyses were used to test the differences for variables in categories.

#### **Research Question 4: Comparison of Beginning College Survey of Student Engagement Completers to Non-Completers and to all First-Time Freshmen**

Research question 4 sought to build a comparison of students who completed BCSSE to those who did not complete BCSSE on the following variables:

- First year GPA
- ACT score (highest composite)

Two independent samples *t*-tests were used to illustrate the differences among the group of students who did complete the BCSSE as compared to the group of students who did not complete the BCSSE. Data was examined for normality, homoscedasticity, linearity, missing variables, and outliers. Instances of missing data were reported in the results section of this research report. Students not completing two semesters were removed from the study. An *alpha* level of .05 was used for the independent samples *t*-tests.

In addition to the independent samples *t*-tests, two one-sample *t*-tests were used to determine if the sample of students who completed the BCSSE were representative of the first-time freshmen population. These inferential *t*-tests were conducted to compare the means of BCSSE completers to the population of first-time freshmen on the measures of ACT score and first-year GPA. An *alpha* level of .05 was used for the one-sample *t*-tests.

### **Research Question 5: Stepwise Multiple Regression Analysis of First-Year Grade Point Average by Selected Beginning College Survey of Student Engagement and Institutional Variables**

Research question 5 sought to build a regression model that could be applied to the analysis of this data in order to aid in the identification of at-risk students in the future. The researcher used the following potential explanatory variables to determine the amount of variance observed in the dependent variable, academic performance as measured by first year GPA:

- Expected working hours (BCSSE variable)
- Expected grades in first year (BCSSE variable)
- First generation student status
- High school GPA
- Intent to graduate from institution (BCSSE variable)
- ACT score (highest composite)
- BCSSE High School Academic Engagement Scale score
- BCSSE Expected Academic Engagement Scale score
- BCSSE Expected Academic Perseverance Scale score
- BCSSE Expected Academic Difficulty Scale score
- BCSSE Perceived Academic Preparation Scale score

These variables were selected for this research question based on information from the research literature and based on possible predictor variables from Bean's model. To identify the variables that present statistically significant contributions to the identification of at-risk students stepwise multiple regression was used. As suggested by Bean's (1981) model, stepwise multiple regression allows for discovery and interpretation of interaction effects if they exist. Stepwise

multiple regression allows variables to be selected for inclusion in the regression model in order of the highest assumed predictability (Hair *et al.*, 2010). The independent variables listed above were examined individually to determine the contribution of the variable to the regression model. When statistical analysis was conducted, the independent variable with the greatest contribution was added to the analysis first and other independent variables were added in order of their incremental contributions over the other variables in the study (Hair *et al.*, 2010).

This research question was answered using stepwise multiple regression analysis with first-year GPA as the dependent variable. The other variables were treated as independent variables and stepwise entry was used due to the exploratory purpose of this study (Hair *et al.*, 2010). Assumptions of multiple regression analysis were reviewed to ensure they were met (Hair *et al.*, 2010). Data was examined for normality, linearity, homoscedasticity, multicollinearity, missing variables, and outliers (Hair *et al.*, 2010). Normality and linearity were tested and confirmed through a p-p plot of the residuals (Hair *et al.*, 2010). Homoscedasticity was tested through a review of the plotted standardized residuals and the standardized predicted values (Hair *et al.*, 2010). Multicollinearity was checked through a review of the tolerance values (Hair *et al.*, 2010). Instances of missing data were reported in the research report. Students not completing their first academic year were removed from the study. An *alpha* level of .05 was used for the stepwise multiple regression analysis. The resulting bivariate correlations, correlation matrix, model summary, ANOVA, and coefficients tables were examined for interpretation of the regression analysis (Hair *et al.*, 2010). From the standpoint of practical significance, any independent variables resulting in less than 1% of variance explained were not included in the accepted regression model. This decision was based on the significance of effect size calculations measuring an effect size as small at 2% ( $f^2=.2$ ) of variance explained

(Cohen, 1988). In an attempt to include variables with a significant effect size regardless of statistical significance, only those explaining at least 1% of the variance in the dependent variable were included in the accepted regression model.

The variables listed below are the resulting measures from the BCSSE survey and the variable categories are as listed. The possible explanatory variables and their coding was as listed below:

- High school GPA (metric variable)
- ACT score (highest composite, metric variable)
- Expected working hours
  - 1 = 0 Hours per week
  - 2 = 1-5 Hours per week
  - 3 = 6-10 Hours per week
  - 4 = 11-15 Hours per week
  - 5 = 16-20 Hours per week
  - 6 = 21-25 Hours per week
  - 7 = 26-30 Hours per week
  - 8 = More than 30 hours per week
- Expected grades in first year (grade of A+ not used in BCSSE scale for this variable)
  - 1 = C- or lower
  - 2 = C
  - 3 = C+
  - 4 = B-

- 5 = B
- 6 = B+
- 7 = A-
- 8 = A
- Intention to graduate from institution – this variable was recoded to a nominal dichotomous variable for inclusion in the regression analysis.
  - 1 = Intend to graduate from institution
  - 0 = Do not intend/unsure
- First generation student status - this variable was recoded to a nominal dichotomous variable for inclusion in the regression analysis.
  - 0 = Not first generation/unknown
  - 1 = First generation

The BCSSE scales used in the regression analysis consisted of a combination of variables identified by BCSSE. BCSSE identifies six possible scales used for advising purposes and identifying at-risk students (Indiana University, 2012). Five of the six available BCSSE scale scores were used in this analysis as they corresponded to possible explanatory variables from the theoretical framework of this study. The scales result in a score ranging from 1 to 10 and the implications and use of the scale scores was presented in the instrumentation section of this chapter. The scales are presented below with an explanation of their meaning as presented by the BCSSE organization (Indiana University, 2012).

- BCSSE Scales:
  - High School Academic Engagement Scale – Engagement in educationally relevant behaviors during the last year of high school.

- Expected Academic Engagement Scale – Expected engagement in educationally relevant behaviors during the first year of college.
- Expected Academic Perseverance Scale – Student certainty that they will persist in the face of academic adversity.
- Expected Academic Difficulty Scale – Expected academic difficulty during the first year of college.
- Perceived Academic Preparation Scale – Student perception of their academic preparation.

Along with the regression analyses, the regression variates were examined to test for the assumptions of multiple regression analysis (Hair *et al*, 2010). The assumptions of linearity, homoscedasticity, independence of residuals, and normality were met.

#### **Louisiana State University Institutional Review Board Approval**

Application to the Louisiana State University Institutional Review Board was approved and is attached as Appendix F of this document. Approval for Institutional Review Board exemption was received from the Institutional Review Board at the institution where this study was conducted, the form can be found in Appendix G of this document.

## **CHAPTER 4: RESULTS**

This study was conducted to determine if a model existed that would help institutional staff identify at-risk students. Incoming freshmen for the fall semesters of 2010-2012 were surveyed using the Beginning College Survey of Student Engagement (BCSSE) and institutional data was collected for the same students in the indicated semesters. Data collection for this study took place during the fall semester of 2013 and included student data and BCSSE data from the fall semesters of 2010, 2011, and 2012. Data for this study was collected using two methods – a researcher designed data collection form and the BCSSE survey instrument.

### **Research Question 1: Characteristics of Students Completing the Beginning College Survey of Student Engagement**

The first research question described the sample of students who completed the Beginning College Survey of Student Engagement (BCSSE) in the fall semesters of 2010, 2011, and 2012. The variables included in this description were: ethnicity, student enrollment status, gender, intent to graduate from institution, parental degree attainment, first generation student status, residential student status, expected working hours, expected college grades, ACT score (highest composite), and first year GPA.

The majority ethnicity among BCSSE completers was White/Caucasian (1,429; 71.2%). The second largest ethnicity group among BCSSE completers was African American (374, 18.6%) and the third largest ethnicity group was Hispanic (63, 3.1%). Descriptive statistics for ethnicity of BCSSE completers are presented in Table 5.

Student enrollment status was classified for BCSSE completers in terms of the credit hours carried during their first semester of enrollment. Only two categories of variables were used in this descriptive. Students classified as full-time during their first semester (carrying a

Table 5. Distribution of Ethnicity for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Ethnicity	<i>n</i>	%
White/Caucasian	1,429	71.3
African American	374	18.6
Hispanic	63	3.1
Two or more races	54	2.7
Alaskan Native/American Indian	36	1.8
Unknown	26	1.3
Asian	25	1.2
Total	2,007	100.0

minimum of 12 credit hours) were the majority of completers (1,762; 87.8%). Students classified as part-time during their first semester (carried less than 12 credit hours) made up a much smaller portion of BCSSE completers (245, 12.2%). The mean hours carried was 14.61, with a standard deviation of 2.37. The minimum hours enrolled was 4 and the maximum enrolled was 21. Student enrollment status data can be found in Table 6.

Table 6. Distribution of Student Enrollment Status for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Enrollment Status	<i>n</i>	%
Full-time (carried a minimum of 12 hours)	1,762	87.8
Part-time (carried less than 12 hours)	245	12.2
Total	2,007	100.0

Note:  $m = 14.61$ ,  $sd = 2.37$ , Minimum = 4, Maximum = 21

A larger percentage of females than males comprised the BCSSE completers: females (1,363; 67.9%) and males (644, 32.1%). The distribution of the respondents' gender is displayed in Table 7.

Table 7. Distribution of Gender for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Gender	<i>n</i>	%
Female	1,363	67.9
Male	644	32.1
Total	2,007	100.0

Intent to graduate from institution was a variable gained from the BCSSE survey. BCSSE asked students if they intended to graduate from the institution of their initial enrollment. Most



students (1,607; 80.1%) indicated that they did intend to graduate from the institution. A smaller number of students (387, 19.3%) indicated that they were either unsure or did not intend to graduate from the institution. There were 13 students who completed the BCSSE who did not answer this question. The distribution of the intent to graduate variable can be seen in Table 8 below.

Table 8. Distribution of Intent to Graduate Variable for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Intent to Graduate	<i>n</i>	%
Yes	1,607	80.1
No/Unsure	387	19.3
Missing	13	.6
Total	2,007	100.0

BCSSE asked students to report the degree attainment of both their fathers and mothers and these variables were reported separately. Among BCSSE completers, a larger number reported that their mothers did complete a 4-year degree (598, 59.8%) than did their fathers (444, 22.1%). In both categories, some students reported that they did not know whether their mother (105, 5.2%) or father (182, 9.1%) had at least attained a 4-year degree. A total of 26 students who completed BCSSE did not answer this question. The distribution for mother's degree attainment can be found in Table 9 and father's degree attainment in Table 10.

Table 9. Distribution of Mother's Educational Attainment for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Mother's Educational Attainment	<i>n</i>	%
Did not complete 4-year degree	1,293	64.5
Did complete 4-year degree	598	29.8
Unknown	105	5.2
Missing	11	.5
Total	2,007	100.0

Table 10. Distribution of Father's Educational Attainment for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Father's Educational Attainment	<i>n</i>	%
Did not complete 4-year degree	1,366	68.1
Did complete 4-year degree	444	22.1
Unknown	182	9.1
Missing	15	.7
Total	2,007	100.0

First-generation student status was determined by combining the results of the parental degree attainment variable and coding those students who did not have at least one parent completing a 4-year degree as first-generation. A majority (1,080; 53.8%) of BCSSE completers were identified as first-generation students. Students who reported having a parent with a 4-year degree composed the next largest group (769, 38.3). There was a small percentage (158, 7.9%) of students reporting that they did not know of their mother or father's degree attainment. Table 11 displays the distribution of first-generation student status.

Table 11. Distribution of First-Generation Student Status for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

First-Generation Status	<i>n</i>	%
First-Generation	1,080	53.8
Not First-Generation	769	38.3
Unknown/Missing	158	7.9
Total	2,007	100.0

Due to the high population of in-state students at the institution where this study was conducted, the residential classification of students was reduced to indicate whether a student was either an in-state student or an out-of-state student. A large majority (1,910; 95.2%) of BCSSE completers were residents of the state where this study was conducted. Only a small portion (97, 4.8%) were either residents of other states or were international students. Table 12 includes the distribution of students based on residential status.

Table 12. Distribution of Residential Status for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Resident Status	<i>n</i>	%
In-State	1,910	95.2
Out-of-State/International	97	4.8
Total	2,007	100.0

Another variable used to describe BCSSE completers was anticipated weekly working hours. Students were asked to report how many hours per week they anticipated working while they were in college. Among BCSSE completers, a small number did not answer this question (11, .5%) The largest number of students reported that they did not anticipate working at all while they were in college, indicating 0 hours per week (627, 31.2%). Among other students completing the BCSSE, 15.8% (318) anticipated working between 6-10 hours per week, 14% (281) of students anticipated working between 16-20 hours per week, and 13.6% (272) of students anticipated working between 11-15 hours per week. Table 13 includes the distribution of anticipated weekly working hours for BCSSE completers.

Table 13. Distribution of Anticipated Weekly Work Hours for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Anticipated Weekly Work Hours	<i>n</i>	%
0 Hours per week	627	31.3
1-5 Hours per week	172	8.6
6-10 Hours per week	318	15.8
11-15 Hours per week	272	13.6
16-20 Hours per week	281	14.0
21-25 Hours per week	163	8.1
26-30 Hours per week	98	4.9
More than 30 hours per week	65	3.2
Missing	11	.5
Total	2,007	100.0

Of BCSSE completers, most students anticipated earning either A's or B's as college students. Students who anticipated earning at least a B+ comprised the largest reporting group (504, 25.1%). Close in number were students reporting an anticipated average grade of B (479,

23.9%). Students estimating that they would earn at least an A- were next in frequency (410, 20.4%) followed by those who anticipated earning an A average (343, 17.1%). Students anticipated earning at least a C+ were next in frequency (77, 3.8%) followed by those who anticipated at least an average grade of C (19, .9%). Only one student reported that they anticipated earning at least a C- or lower (1, .0%). The grade of A+ was not used in the instrument as a choice for the survey item. Only one student among BCSSE completers did not answer this question. The distribution of expected grades for BCSSE completers is included in Table 14.

Table 14. Distribution of Anticipated College Grades for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Anticipated College Grades	<i>n</i>	%
C- or Lower	1	.0
C	19	.9
C+	77	3.8
B-	173	8.6
B	479	23.9
B+	504	25.2
A-	410	20.5
A	343	17.1
Missing	1	.0
Total	2,007	100.0

Highest composite ACT scores for the sample of students studied ranged from 11 to 34. The largest number of students had an ACT score of 20 (291, 14.5%) with the score of 21 (286, 14.3%) being close in number and percentage. The third largest group scored 22 (201, 10%). Table 15 illustrates the distribution of highest composite ACT scores for the sample of students. There were 44 students with missing scores. This missing data could be due to the admissions policy that non-traditional students (aged 25 or older) do not submit ACT or SAT scores with their application and are placed in classes based on COMPASS test scores, which have no concordance to ACT score. In some cases, transfer freshmen (who are classified as first-time

freshmen) do not submit ACT scores upon admission if they meet other admissions criteria. These two instances resulted in missing test score data for a small number of students in this study. ACT scores were reported as highest composite score earned. For students with a reported SAT score, instead of an ACT score, a conversion table was used where total SAT was converted into a composite ACT score using the approved ACT/SAT conversion chart (Appendix C). Table 15 contains the distribution of ACT scores for all BCSSE completers.

Table 15. Distribution of ACT Scores for Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Highest Composite ACT Score	<i>n</i>	%
11	1	.0
14	2	.1
15	3	.1
16	48	2.4
17	83	4.1
18	120	6.0
19	172	8.6
20	291	14.5
21	286	14.3
22	201	10.0
23	165	8.2
24	180	9.0
25	126	6.3
26	80	4.0
27	76	3.8
28	55	2.7
29	34	1.7
30	17	.8
31	16	.8
32	3	.1
33	2	.1
34	2	.1
Missing	44	2.2
Total	2,007	100.0

Note:  $m = 21.95$ ,  $sd = 3.29$ , Min = 11, Max = 34

First year GPA measures for BCSSE completers ranged from 0.00 to 4.00. The mean first-year GPA was 2.62 with a standard deviation of .88. Descriptive statistics for first-year GPA are presented in a summary in Table 16. .

Table 16. Distribution of First-Year Grade Point Average for Completers of Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Variable	<i>n</i> <sup>a</sup>	<i>m</i>	<i>sd</i>	Min	Max
First-Year GPA	1971	2.62	.88	.00	4.00

<sup>a</sup> First-year GPA measures were missing for 36 students in the study.

### Research Question 2: Characteristics of Students Completing the Beginning College Survey of Student Engagement Compared to Non-Completers

The second research question identified and described the characteristics of students who completed the BCSSE survey for the selected years of this study as compared to the students who did not complete the survey on the variables ethnicity, full-time/part-time status, gender, first-generation student status, residential student status, first-year earned hours, first-year GPA, and ACT score (highest composite).

The largest percentage in ethnicity for both BCSSE completers and non-completers was White/Caucasian: completers (1,429; 71.2%) and non-completers (673, 61.4). The second largest ethnic group for both completers and non-completers was African American: completers (374, 18.6%) and non-completers (292, 26.6%). There was a statistically significant difference between BCSSE completers and non-completers in the ethnic groups of White/Caucasian and African American as tested by a *chi-square* analysis ( $\chi^2(7)=42.70, p>.001$ ). A small effect size was measured for this analysis, Cramer's  $V=.17$ . Other ethnicity measures are in Table 17.

Both BCSSE completers and non-completers were mostly full-time students. BCSSE completers included 1,762 (87.8 %) full-time students and non-completers included 920 (83.9%) full-time students. There was a statistically significant difference between BCSSE completers and non-completers (both full-time and part-time) on student enrollment status as tested by a *chi-square* analysis ( $\chi^2(1)=9.52, p=.002$ ). A small effect size was measured for this analysis, Cramer's  $V=.06$ . A comparison of full-time versus part-time student measures is included in Table 18.

Table 17. Comparison of Ethnicity for Completers and Non-Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Ethnicity	<i>n</i> BCSSE <sup>a</sup>	<i>n</i> BCSSE <sup>a</sup>	% BCSSE <sup>a</sup>	% BCSSE <sup>a</sup>
	Completers	Non-Completers	Completers	Non-Completers
White/Caucasian <sup>b</sup>	1,429	673	71.3	61.4
African American <sup>b</sup>	374	292	18.6	26.5
Hispanic	63	49	3.1	4.5
Two or More Races	54	28	2.7	2.6
Alaskan Native/American Indian	36	13	1.8	1.2
Unknown	26	23	1.3	2.1
Asian	25	17	1.2	1.6
Native Hawaiian/Pacific Islander	0	1	0	.1
Total	2,007	1,096	100.0	100.0

<sup>a</sup>Beginning College Survey of Student Engagement. <sup>b</sup>*Chi-square* test indicated statistically significant differences between completers and non-completers ( $\chi^2(7)=42.70, p>.001$ ).

Table 18. Comparison of Student Enrollment Status for Completers and Non-Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Enrollment Status	<i>n</i> BCSSE <sup>a</sup>	<i>n</i> BCSSE <sup>a</sup>	% BCSSE <sup>a</sup>	% BCSSE <sup>a</sup>
	Completers	Non-Completers	Completers	Non-Completers
Full-time <sup>b</sup>	1,762	920	87.8	83.9
Part-time <sup>b</sup>	245	176	12.2	16.1
Total	2,007	1,096	100.0	100.0

<sup>a</sup>Beginning College Survey of Student Engagement. <sup>b</sup>*Chi-square* test indicated statistically significant differences between completers and non-completers ( $\chi^2(1)=9.52, p=.002$ ).

Students completing the BCSSE survey were majority female (1,363; 67.9%). Students who did not complete the survey were almost equal in percentage between males and females with males numbering 547 (49.9%) and females numbering 549 (50.1%). There was a statistically significant difference between BCSSE completers and non-completers on gender as tested by a *chi-square* analysis ( $\chi^2(1)=90.78, p>.001$ ). A small effect size was measured for this analysis, Cramer's *V*=.17. Table 19 includes descriptive statistics for BCSSE completers and non-completers on gender.

Table 19. Comparison of Gender for Completers and Non-Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Gender	<i>n</i> BCSSE <sup>a</sup>	<i>n</i> BCSSE <sup>a</sup>	% BCSSE <sup>a</sup>	% BCSSE <sup>a</sup>
	Completers	Non-Completers	Completers	Non-Completers
Female <sup>b</sup>	1,363	549	67.9	50.1
Male <sup>b</sup>	644	547	32.1	49.9
Total	2,007	1,096	100.0	100.0

<sup>a</sup>Beginning College Survey of Student Engagement. <sup>b</sup>*Chi-square* test indicated statistically significant differences between completers and non-completers ( $\chi^2(1)=90.78, p>.001$ ).

Residential status for BCSSE completers and non-completers did not differ much.

BCSSE completers were mostly in-state students (1,910; 95.2%) as were BCSSE non-completers (1,037; 94.6%). There was no statistically significant difference between BCSSE completers and non-completers on residential status as tested by a *chi-square* analysis ( $\chi^2(1)=.56, p=.46$ ). A small effect size was measured for this analysis, Cramer's  $V=.01$ . Table 19 includes descriptive statistics for BCSSE completers and non-completers on residential status.

Table 20. Comparison of Residential Student Status for Beginning College Survey of Student Engagement Completers and Non-Completers at a Small, Regional, Public University in the South

Resident Status	<i>n</i> BCSSE <sup>a</sup>	<i>n</i> BCSSE <sup>a</sup>	% BCSSE	% BCSSE
	Completers	Non-Completers	Completers	Non-Completers
In-State <sup>b</sup>	1,910	1,037	95.2	94.6
Out-of-State/International <sup>b</sup>	97	59	4.8	5.4
Total	2,007	1,096	100.0	100.0

<sup>a</sup>Beginning College Survey of Student Engagement. <sup>b</sup>*Chi-square* test indicated no statistically significant differences between completers and non-completers ( $\chi^2(1)=.56, p=.46$ ).

There were some differences between BCSSE completers and non-completers for the variables ACT score, first-year earned hours, and first-year GPA. Table 21 includes measures for ACT score. The highest composite ACT score differed between BCSSE completers and non-completers by .75 with the mean ACT for completers as 21.96 and the mean score for non-completers as 21.25. BCSSE completers had a standard deviation of 3.29 and non-completers had a standard deviation of 3.11. The minimum ACT score recorded for completers was 11 and the maximum was 34 whereas the minimum recorded score for



non-completers was 14 and the maximum was 31. The differences in ACT score were tested for significance in research question 4.

Table 21. Comparison of ACT Scores for Completers and Non-Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Variable	<i>n</i> <sup>a</sup>	<i>m</i>	<i>sd</i>	Min	Max
ACT - Completers	1,963	21.96	3.29	11	34
ACT - Non-Completers	1,055	21.25	3.11	14	31

<sup>a</sup>ACT scores were missing for 44 completers and 41 non-completers.

BCSSE completers earned slightly more hours after their first year of attendance than non-completers did. Completers earned a mean of 29.64 hours and non-completers earned a mean of 25.11 hours. Completers had a standard deviation of 10.10 and non-completers had a standard deviation of 10.62. The minimum for both groups of students was 0 and the maximum for completers was 79 while the maximum for non-completers was 101. The maximum numbers may seem a little large for first-time freshmen and this could be due to students having earned hours before their first semester at an institution. At the institution where this study was conducted, high school students have the opportunity to complete courses for college credit. This type of program can result in first-time freshmen beginning college with as many as 45-60 earned hours of credit. An independent samples *t*-test comparing the first-year earned hours of BCSSE completers and non-completers found a significant difference between the means of the two groups ( $t(2113.40)=11.41, p<.001$ ). A medium effect size was measured for this analysis, Cohen's  $d=.44$ . The mean of the BCSSE completer group ( $m=29.64, sd=10.1$ ) was significantly higher than the mean of the non-completer group ( $m=25.13, sd=10.6$ ). Table 22 includes the measures of first-year earned hours for BCSSE completers and non-completers.

Table 22. Comparison of First-Year Earned Hours for Completers and Non-Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Variable	<i>n</i> <sup>a</sup>	<i>m</i>	<i>sd</i>	Min	Max
Earned Hours - Completers <sup>b</sup>	1,971	29.64	10.10	0	79
Earned Hours - Non-Completers <sup>b</sup>	1,075	25.11	10.62	0	101

<sup>a</sup>First-year earned hours were missing from 36 completers and 21 non-completers.

<sup>b</sup>Independent samples *t*-test indicated significant differences between mean first-year earned hours for BCSSE completers and non-completers ( $t(2113.40)=11.41, p<.001$ ).

Students who completed BCSSE earned higher first-year GPAs than did those who did not complete BCSSE. The mean first-year GPA for BCSSE completers was 2.65 whereas the mean first-year GPA for non-completers was 2.19. The standard deviation for completers was .88 and the standard deviation for non-completers was .99. An independent samples *t*-test comparing the first-year GPA of BCSSE completers and non-completers found a significant difference between the means of the two groups ( $t(1994.46)=-12.55, p<.001$ ). The mean of the BCSSE completer group ( $m=2.65, sd=.88$ ) was significantly higher than the mean of the non-completer group ( $m=2.19, sd=.99$ ). A medium effect size was measured for this analysis, Cohen's  $d=.5$ . Table 23 includes measures for first-year GPA for completers and non-completers.

Table 23. Comparison of First-Year Grade Point Average for Completers and Non-Completers of the Beginning College Survey of Student Engagement at a Small, Regional, Public University in the South

Variable	<i>n</i> <sup>a</sup>	<i>m</i>	<i>sd</i>	Min	Max
GPA - Completers <sup>b</sup>	1,971	2.65	.88	0.00	4.00
GPA - Non-Completers <sup>b</sup>	1,075	2.19	.99	0.00	4.00

<sup>a</sup>First-year GPA measures were missing from 36 completers and 21 non-completers.

<sup>b</sup>Independent samples *t*-test indicated significant differences between mean first-year GPA for BCSSE completers and non-completers ( $t(1994.46)=-12.55, p<.001$ ).

### Research Question 3: Characteristics of Students Identified as At-Risk Compared to Students Classified as in Good Standing

The third research question identified and described the characteristics of students who were classified as at-risk after their first year of enrollment as compared to the students who were

not at-risk based on academic performance measured by first-year GPA. At-risk students were compared to those not classified as at-risk on the variables: ethnicity, student enrollment status, gender, ACT score (highest composite), first-year GPA, first-year earned hours, residential student status, and BCSSE completion rates. For the purposes of this study, an at-risk student was defined as a student who has earned a GPA below what is acceptable for good standing at the institution in this study. The GPA designated as at-risk for this study was a GPA measure below 2.00. For the purposes of this description, students will be classified as either at-risk (GPA below 2.00) or good standing (2.00 GPA or above). Of the total students in this study ( $N=2942$ ) 27% ( $n=801$ ) were at-risk at the end of their first year of college.

Students on good standing were mostly White Caucasian (1,669; 75.6%) with African American measuring the next largest ethnic group not at-risk (292, 13.2%). These same two ethnic groups also appeared as the majority of students who were identified as at-risk based on first year GPA with White/Caucasian having the largest percent (836, 46.4%) and African American having the second largest (366, 43.8%). There were no other ethnic groups that measured close to the percentages of the above mentioned groups. There was a statistically significant difference between students identified as at-risk and those in good standing on the ethnicity categories of White/Caucasian and African American as tested by a *chi-square* analysis ( $\chi^2(7)=350.63, p>.001$ ). A medium effect size was measured for this analysis, Cramer's  $V=.34$ . Table 24 includes a comparison of ethnicity for at-risk students versus those on good standing after their first-year of enrollment based on first-year GPA.

Full-time enrolled students were the majority for both at-risk students and those on good standing. Among students on good standing, 90.2% were enrolled full time and 76.9% of at-risk students were full time. There was a statistically significant difference between students

identified as at-risk and those in good standing on student enrollment status as tested by a *chi-square* analysis ( $\chi^2(1)=92.38, p>.001$ ). A small effect size was measured for this analysis, Cramer's  $V=.17$ . Table 25 includes the measures for student enrollment status of students who were at-risk and those who were on good standing.

Table 24. Comparison of Ethnicity for Students in Good Standing and Students Classified as At-Risk at a Small, Regional, Public University in the South

Ethnicity	<i>n</i> Good Standing	<i>n</i> At-Risk	% Good Standing	% At-Risk
White/Caucasian <sup>a</sup>	1669	836	75.6	46.4
African American <sup>a</sup>	292	366	13.2	43.8
Hispanic	80	31	3.6	3.7
Two or More Races	63	18	2.9	2.2
Unknown	42	5	1.9	.6
Asian	32	10	1.4	1.2
Alaskan Native/American Indian	31	17	1.4	2.0
Native Hawaiian/Pacific Islander	0	1	0	.1
Total	2209	836	100.0	100.0

<sup>a</sup>*Chi-square* test indicated statistically significant differences between students identified as at-risk and those in good standing ( $\chi^2(7)=350.63, p>.001$ ).

Table 25. Comparison of Enrollment Status for Students in Good Standing and Students Classified as At-Risk at a Small, Regional, Public University in the South

Enrollment Status	<i>n</i> Good Standing	<i>n</i> At-Risk	% Good Standing	% At-Risk
Full-time <sup>a</sup>	1993	643	90.2	76.9
Part-time <sup>a</sup>	216	193	9.8	23.1
Total	2209	836	100.0	100.0

<sup>a</sup>*Chi-square* test indicated statistically significant differences between students identified as at-risk and those in good standing ( $\chi^2(1)=92.38, p>.001$ ).

Females were in the majority for both students at-risk (464, 55.5%) and students on good standing (1,416; 64.1%). There was a statistically significant difference between students identified as at-risk and those in good standing on gender as tested by a *chi-square* analysis ( $\chi^2(1)=18.99, p>.001$ ). A small effect size was measured for this analysis, Cramer's  $V=.08$ . Table 26 illustrates the breakdown of gender for at-risk students compared to students on good standing.

On average, students who remained in good standing after their first year of enrollment had scored higher on the ACT than students who were identified as at-risk after their first year. Students on good standing scored an average 22.42 ACT score while at-risk students scored an

Table 26. Comparison of Gender for Students in Good Standing and Students Classified as At-Risk at a Small, Regional, Public University in the South

Gender	<i>n</i> Good Standing	<i>n</i> At-risk	% Good Standing	% At-Risk
Female <sup>a</sup>	1416	464	64.1	55.5
Male <sup>a</sup>	793	372	35.9	44.5
Total	2209	836	100.0	100.0

<sup>a</sup>*Chi-square* test indicated statistically significant differences between students identified as at-risk and those as in good standing ( $\chi^2(1)=18.99, p>.001$ ).

average score of 19.82. An independent samples *t*-test comparing the ACT score of students identified as at-risk and those as in good standing found a significant difference between the means of the two groups ( $t(1702.69)=22.52, p<.001$ ). The mean of the students on good standing ( $m=22.42, sd=3.16$ ) was significantly higher than the mean of the at-risk group ( $m=19.82, sd=2.66$ ). A large effect size was measured for this analysis, Cohen's  $d=.89$ . Table 27 includes the descriptive statistics for ACT score for at-risk students compared to students on good standing.

Table 27. Comparison of ACT Score for Students in Good Standing and Students Classified as At-Risk at a Small, Regional, Public University in the South

Variable	<i>n</i>	<i>m</i>	<i>sd</i>	Min	Max
ACT – Good Standing <sup>a</sup>	2156	22.42	3.16	11	34
ACT – At-Risk <sup>a</sup>	808	19.82	2.66	14	31

<sup>a</sup>Independent samples *t*-test indicated significant differences between mean ACT score for students identified as at-risk and those in good standing ( $t(1702.69)=22.52, p<.001$ ).

Students on good standing earned more hours at the completion of their first-year of enrollment, having a mean earned hours of 32.33. Students who were identified as at-risk completed half as many hours as did students on good standing; this group had a mean earned hours measure of 16.72. An independent samples *t*-test comparing the first-year earned hours of

students identified as at-risk and those in good standing found a significant difference between the means of the two groups ( $t(1554.81)=49.76, p<.001$ ). The mean of the students on good standing ( $m=32.33, sd=7.93$ ) was significantly higher than the mean of the at-risk group ( $m=16.72, sd=7.65$ ). A large effect size was measured for this analysis, Cohen's  $d=1.6$ . Table 29 includes descriptive statistics for first-year earned hours for these two groups of students.

Table 28. Comparison of First-Year Earned Hours for Students in Good Standing and Students Classified as At-Risk at a Small, Regional, Public University in the South

Variable	<i>n</i>	<i>m</i>	<i>sd</i>	Min	Max
Earned Hours – Good Standing <sup>a</sup>	2209	32.33	7.92	10	101
Earned Hours – At-Risk <sup>a</sup>	836	16.72	7.65	0	49

<sup>a</sup>Independent samples *t*-test indicated significant differences between mean first-year earned hours for students identified as at-risk and those in good standing ( $t(1554.81)=49.76, p<.001$ ).

In both cases, students on good standing and students identified as at-risk included a majority of in-state students. A very large percentage (2,085; 94.4%) of students on good standing were in-state. An even larger percentage (805; 96.3%) of at-risk students were in-state. There was a statistically significant difference between students identified as at-risk and those in good standing on residential status as tested by a *chi-square* analysis ( $\chi^2(1)=4.56, p=.033$ ). A small effect size was measured for this analysis, Cramer's  $V=.04$ . Table 30 includes the frequency and percentage measures for student residential status for the two groups of students.

Table 29. Comparison of Residential Student Status for Students in Good Standing and Students Classified as At-Risk at a Small, Regional, Public University in the South

Resident Status	<i>n</i> Good Standing	<i>n</i> At-Risk	% Good Standing	% At-Risk
In-State <sup>a</sup>	2085	805	94.4	96.3
Out-of-State/International <sup>a</sup>	124	31	5.6	3.7
Total	2209	836	100.0	100.0

<sup>a</sup>*Chi-square* test indicated statistically significant differences between students identified as at-risk and those as in good standing ( $\chi^2(1)=4.56, p=.033$ ).

Finally, BCSSE completion was examined and compared for students on good standing and those who were identified as at-risk. Students who were on good standing (1,556; 78.9%)

completed the BCSSE at higher rates than did students who were at-risk (415, 21.1%). There was a statistically significant difference between students identified as at-risk and those in good standing on BCSSE completion as tested by a *chi-square* analysis ( $\chi^2(1)=114.91, p>.001$ ). A small effect size was measured for this analysis, Cramer's  $V=.20$ . Table 31 includes information on BCSSE completion for the two groups of students.

Table 30. Comparison of Beginning College Survey of Student Engagement Completion for Students in Good Standing and Students Classified as At-Risk at a Small, Regional, Public University in the South

BCSSE <sup>a</sup> completion	<i>n</i> Good Standing	<i>n</i> At-risk	% Good Standing	% At-risk
Did complete BCSSE <sup>b</sup>	1556	415	78.9	21.1
Did not complete BCSSE <sup>b</sup>	653	421	60.8	39.2

<sup>a</sup> Beginning College Survey of Student Engagement. <sup>b</sup> *Chi-square* test indicated statistically significant differences between students identified as at-risk and those as in good standing ( $\chi^2(1)=114.91, p>.001$ ).

#### **Research Question 4: Comparison of Beginning College Survey of Student Engagement Completers to Non-Completers and to all First-Time Freshmen**

Research question 4 sought to build a comparison of students who completed BCSSE to those who did not complete BCSSE on the following variables:

- First year GPA
- ACT score (highest composite)

Two independent samples *t*-tests were used to illustrate the differences between the group of students who did complete the BCSSE as compared to the group of students who did not complete the BCSSE. Data was examined for normality, homoscedasticity, missing variables, and outliers. Instances of missing data are reported in the research report. Students not completing two semesters were removed from the study. An *alpha* level of .05 was used for the independent samples *t*-test. In addition to the independent samples *t*-test, two one sample *t*-tests were used to determine if the sample of students who completed the BCSSE were representative

of the first-time freshmen population. These inferential *t*-tests were conducted to compare the means of BCSSE completers to the population of first-time freshmen on the measures of ACT score and first-year GPA.

Before the independent samples *t*-tests were conducted, it was determined that the two groups of students studied were independent of each other and the assumption of normality was tested and passed (Hair *et al.*, 2010). The dependent variables are measured at the interval level and the independent variables have only two discrete levels (BCSSE completers or non-completers). The variables of ACT score (highest composite) and high school GPA were all tested for normality using both the Shapiro-Wilks and Kolmogorov-Smirnov tests for normality and passed with significance values  $p < .001$  (Hair *et al.*, 2010). An *alpha* level of .05 was used for all *t*-tests in this research question.

The results of the independent samples *t*-tests identified statistically significant differences among BCSSE completers and non-completers on measures of high school GPA and ACT score. The independent samples *t*-test comparing the mean scores of BCSSE completers and non-completers found a significant difference between the means of the two groups on high school GPA ( $t(3052)=12.47, p < .001$ ). The mean of the BCSSE completer group ( $m=3.309, sd=.47$ ) was significantly higher than the mean of the non-completer group ( $m=3.01, sd=.47$ ). The Cohen's *d* measure of this analysis ( $d=.47$ ) presented a medium effect size (Cohen, 1988).

The independent samples *t*-test comparing the mean scores of BCSSE completers and non-completers found a significant difference between the means of the two groups on ACT score ( $t(3016)=5.75, p < .001$ ). The mean of the BCSSE completer group ( $m=21.95, sd=3.29$ ) was significantly higher than the mean of the non-completer group ( $m=21.25, sd=3.11$ ). The Cohen's *d* measure of this analysis ( $d=.22$ ) presented a medium to small effect size (Cohen, 1988). Table



32 includes the results from the independent samples *t*-test comparing BCSSE completers and non-completers on high school GPA and Table 33 includes the results from the independent samples *t*-test comparing BCSSE completers and non-completers on ACT score.

Table 31. Independent Samples *t*-test Comparing Beginning College Survey of Student Engagement Completers and Non-Completers on High School Grade Point Average at a Small, Regional, Public University in the South

Student Group	<i>m</i>	<i>sd</i>	<i>t</i> -test for equality of means				
			<i>t</i>	<i>df</i>	<i>P</i> (2-tailed)	<i>Mean</i> <i>Difference</i>	<i>SE</i> <i>Difference</i>
Completers	3.31	.47					
Non-Completers	3.09	.47	12.47	3052	<.001	.22	.02

Note: Equal variances assumed. Levene's Test for Equality of Variances *F* Value was .672, *p*=.412.

Table 32. Independent Samples *t*-test Comparing Beginning College Survey of Student Engagement Completers and Non-Completers on ACT Score at a Small, Regional, Public University in the South

Student Group	<i>m</i>	<i>sd</i>	<i>t</i> -test for equality of means				
			<i>t</i>	<i>df</i>	<i>P</i> (2-tailed)	<i>Mean</i> <i>Difference</i>	<i>SE</i> <i>Difference</i>
Completers	21.95	3.29					
Non-Completers	21.25	3.11	5.75	3016	<.001	.71	.12

Note: Equal variances assumed. Levene's Test for Equality of Variances *F* Value was 2.997, *p*=.084.

Before the single-sample *t*-tests were conducted, the assumption of normality was tested and met (Hair *et al.*, 2010). The variables ACT score and high school GPA were tested for normality using both the Shapiro-Wilks and Kolmogorov-Smirnov tests for normality and all passed with significant values *p*<.001 (Hair *et al.*, 2010). Since the population data was needed for these tests of significance, descriptive statistics were derived from the population data which are presented in Table 34. The population mean values for high school GPA and ACT score were used as the test values in the single-sample *t*-tests.

Table 33. ACT Score and High School Grade Point Average for Incoming Freshmen from Fall 2010, 2011, and 2012 at a Small, Regional, Public University in the South

Population Variable	<i>M</i>	<i>SD</i>	Min	Max
ACT Score (highest composite)	21.71	3.25	11	34
High School GPA	3.23	.48	1.20	4.00

The single-sample *t*-test that compared the mean high school GPA of the sample of BCSSE completers to the population mean high school GPA of 3.23 found a significant difference ( $t(1983)=7.38, p<.001$ ). The sample mean of 3.31 ( $sd=.47$ ) was significantly higher than the population mean. The Cohen's *d* measure for this analysis ( $d=.33$ ) presented a moderate to small effect size (Cohen, 1988). The single-sample *t*-test that compared the mean ACT score of the sample of BCSSE completers to the population mean ACT score of 21.71 found a significant difference ( $t(1962)=3.29, p<.001$ ). The sample mean of 21.95 ( $sd=.329$ ) was significantly higher than the population mean. The Cohen's *d* measure for this analysis ( $d=.15$ ) presented a small effect size (Cohen, 1988). Table 34 includes the results of the single-sample *t*-test comparing the sample mean high school GPA to the population mean and Table 35 includes the results of the single-sample *t*-test comparing the sample mean ACT score to the population mean.

Table 34. Single-Sample *t*-test Comparing the Sample of Beginning College Survey of Student Engagement Completers with Population Mean High School Grade Point Average at a Small, Regional, Public University in the South

<i>m</i>	<i>t</i>	<i>df</i>	<i>P</i> (2-tailed)	<i>Mean</i> <i>Difference</i>	95% Confidence Interval of the <i>Difference</i>	
					<i>Lower</i>	<i>Upper</i>
3.31	7.38	1983	<.001	.08	.06	.10

Note: Population mean = 3.23

Table 35. Single-Sample *t*-test Comparing the Sample of Beginning College Survey of Student Engagement Completers with Population Mean ACT Score at a Small, Regional, Public University in the South

<i>m</i>	<i>t</i>	<i>df</i>	<i>P</i> (2-tailed)	<i>Mean</i> <i>Difference</i>	95% Confidence Interval of the <i>Difference</i>	
					<i>Lower</i>	<i>Upper</i>
21.71	3.29	1962	<.001	.24	.10	.39

Note: Population mean = 21.71

### **Research Question 5: Stepwise Multiple Regression Analysis of First-Year Grade Point Average by Selected Beginning College Survey of Student Engagement and Institutional Variables**

Research question 5 sought to determine if a model existed which explained a significant portion of the variance in first-year GPA from the following possible explanatory variables:

- anticipated working hours (BCSSE variable),
- anticipated grades (BCSSE variable),
- first generation student status (BCSSE variable),
- high school GPA,
- intent to graduate from institution (BCSSE variable),
- ACT score (highest composite)
- High School Academic Engagement Scale score (BCSSE variable),
- Expected Academic Engagement Scale score (BCSSE variable),
- Expected Academic Perseverance Scale score (BCSSE variable),
- Expected Academic Difficulty Scale score (BCSSE variable), and
- Perceived Academic Preparation Scale score (BCSSE variable).

This research question was answered using stepwise multiple regression analysis with first-year GPA as the dependent variable. The other variables were treated as independent variables and stepwise entry was used due to the exploratory purpose of this study. This analysis was conducted using data from students who had completed the BCSSE. Students who did not

complete the BCSSE were not included in this analysis because of the nature of the research question and goal to explore the relationship of BCSSE data to first-year GPA.

Before completing this analysis, the assumptions of normality, linearity, homoscedasticity, and multicollinearity were tested. A Probability-Probability (p-p) plot of standardized residuals was used (Figure 2) to test for normality and linearity and these assumptions were met (Hair *et al.*, 2010). p-p plots allow researchers to plot the cumulative probability of a selected variable against a distribution to test for properties of the distribution (Field, 2013). In the case of this test for normality and linearity, the p-p plot is placed over a normal distribution line (the diagonal in the graphs) to test for variations from the distribution line (Field, 2013). The plotted points do not vary greatly from the line, this confirming the normality and linearity of the variables tested (Field, 2013). Scatterplots were used to test for homoscedasticity, and that assumption was met (Hair *et al.*, 2010). Figures 2 through 8 are included as evidence that the assumptions of normality and linearity of independent variables were met. As can be seen in each p-p plot, the standardized residuals plotted do not vary much from the diagonal, this confirming normality and linearity (Hair *et al.*, 2010). Figures 4 through 8 show the independent variables to follow a linear and normal pattern when plotted.

Multicollinearity was tested by examining the independent variables, and their corresponding tolerance values, that were significant to the regression analyses. Tolerance values for all independent variables in the regression analysis are presented in Table 36. The variables are presented in the table in order of their entry into the regression analysis. All variables measured tolerance values above .66 which are considered acceptable as they indicate low levels of multicollinearity and would not pose a problem in the regression analysis (Hair *et al.*, 2010).

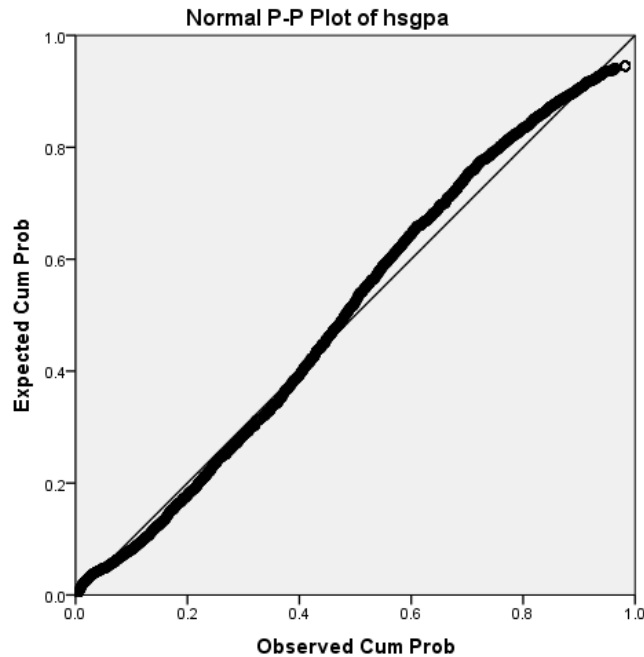


Figure 2. p-p Plot for Normality and Linearity Test of High School Grade Point Average for the Stepwise Multiple Regression Analysis for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

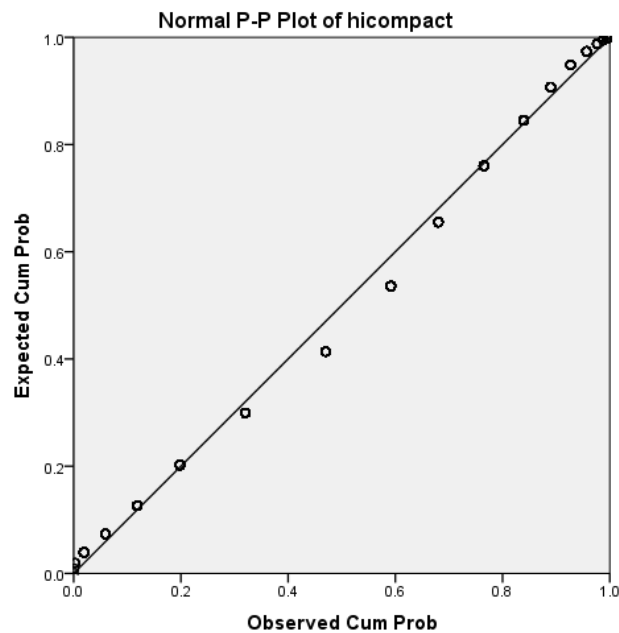


Figure 3. p-p Plot for Normality and Linearity Test of ACT Score for the Stepwise Multiple Regression Analysis for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

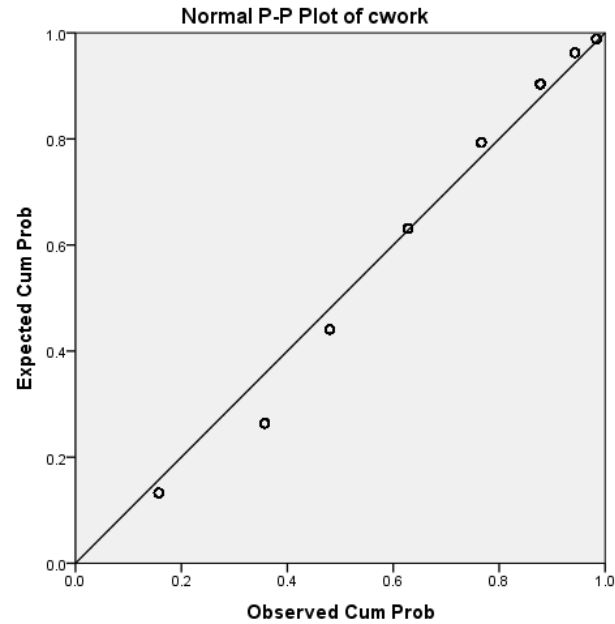


Figure 4. p-p Plot for Normality and Linearity Test of Expected Weekly Work Hours for the Stepwise Multiple Regression Analysis for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

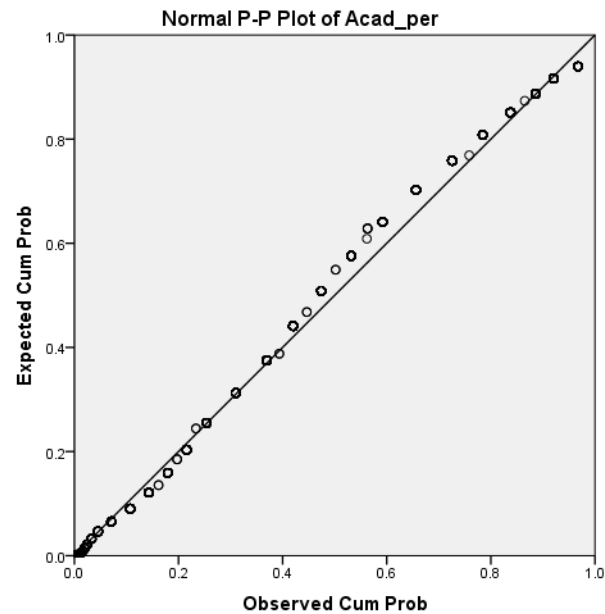


Figure 5. p-p Plot for Normality and Linearity Test of Expected Academic Perseverance for the Stepwise Multiple Regression Analysis for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

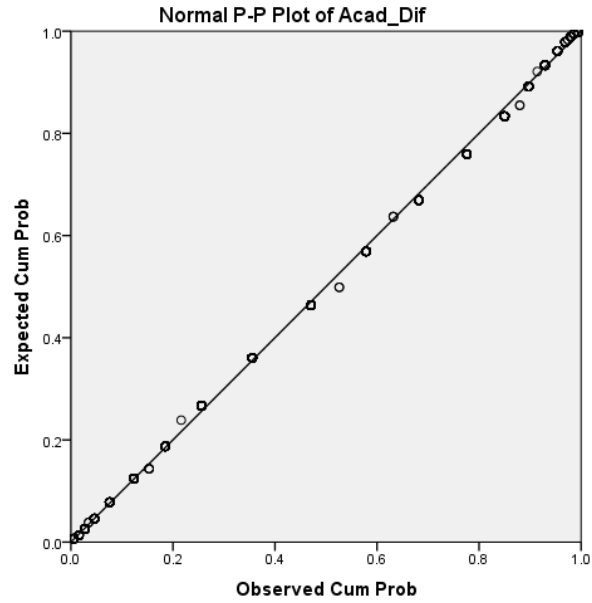


Figure 6. p-p Plot for Normality and Linearity Test of Expected Academic Difficulty for the Stepwise Multiple Regression Analysis for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

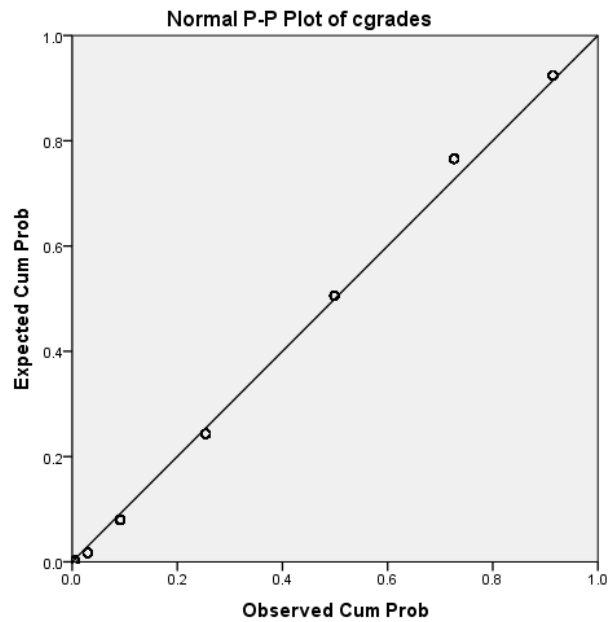


Figure 7. p-p Plot for Normality and Linearity Test of Expected College Grades for the Stepwise Multiple Regression Analysis for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

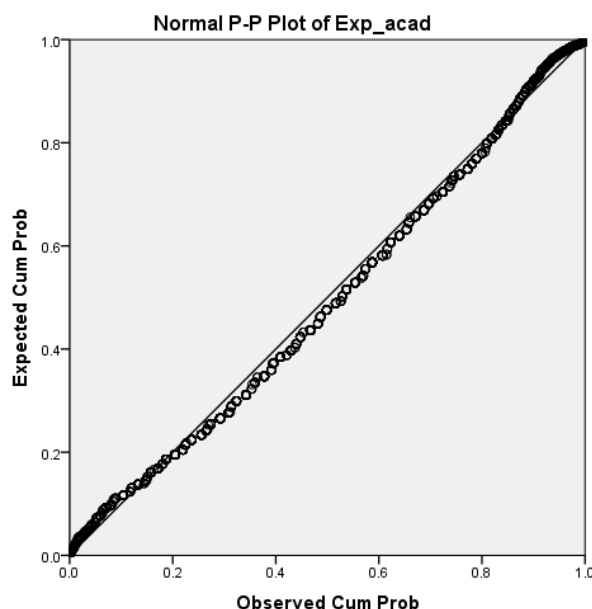


Figure 8. p-p Plot for Normality and Linearity Test of Expected Academic Engagement for the Stepwise Multiple Regression Analysis for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

Table 36. Tolerance Values for Predictor Variables Utilized in Stepwise Multiple Regression Analysis of First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

Variable	Tolerance
High School GPA	.67
ACT Score	.66
Anticipated Weekly Work Hours	.99
Expected Academic Perseverance	.78
Expected Academic Difficulty	.92
Anticipated College Grades	.75
Expected Academic Engagement	.78

Along with the analysis of individual independent variables for assumptions of multiple regression analysis, the regression variates were examined to test for the assumptions of multiple regression analysis for the model as a whole (Hair *et al*, 2010). The assumptions of linearity, homoscedasticity, independence of residuals, and normality were met. The following figures display the analysis of residuals and the partial regression plots for the above mentioned regression analysis. The P-P plot of the regression standardized residuals (Figure 9) shows no large variation from the normality and linearity assumption (Hair *et al*, 2010). The scatterplot of



standardized residuals and partial regression plots (Figures 10, 11, and 12) show no distributions that are not homoscedastic and confirms the independence of residuals. (Hair *et al*, 2010).

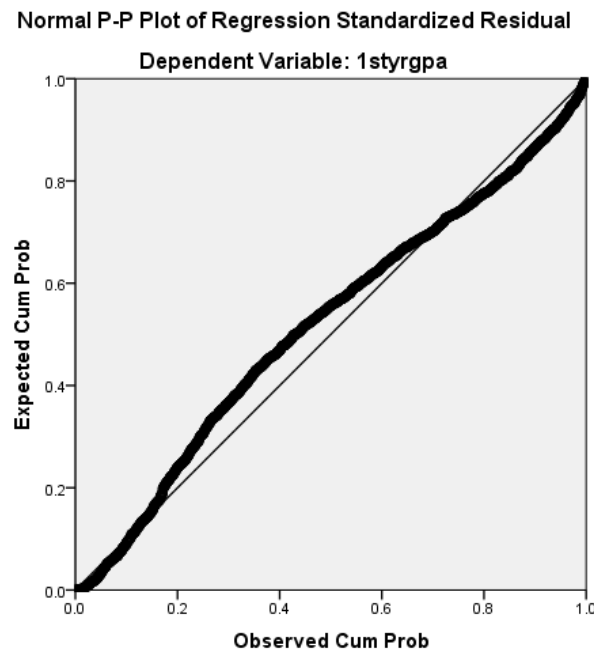


Figure 9. Normal P-P Plot of Standardized Residuals for the Stepwise Multiple Regression for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

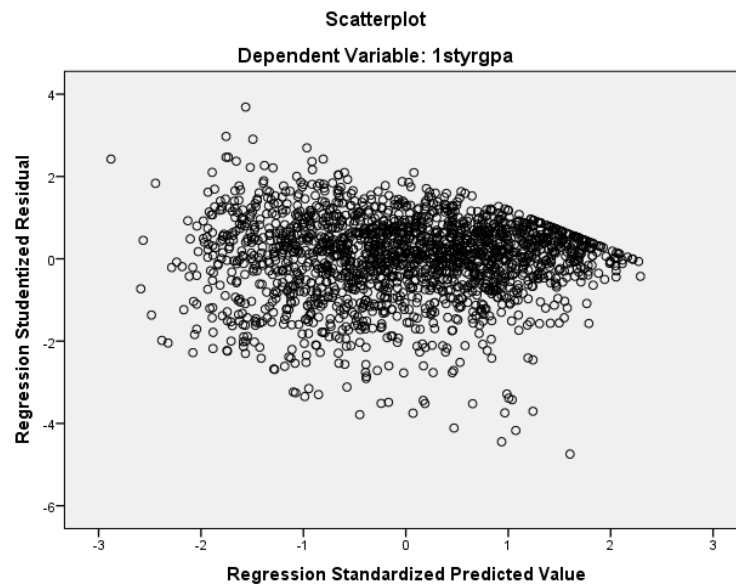


Figure 10. Scatterplot of Standardized Residuals for the Stepwise Multiple Regression for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

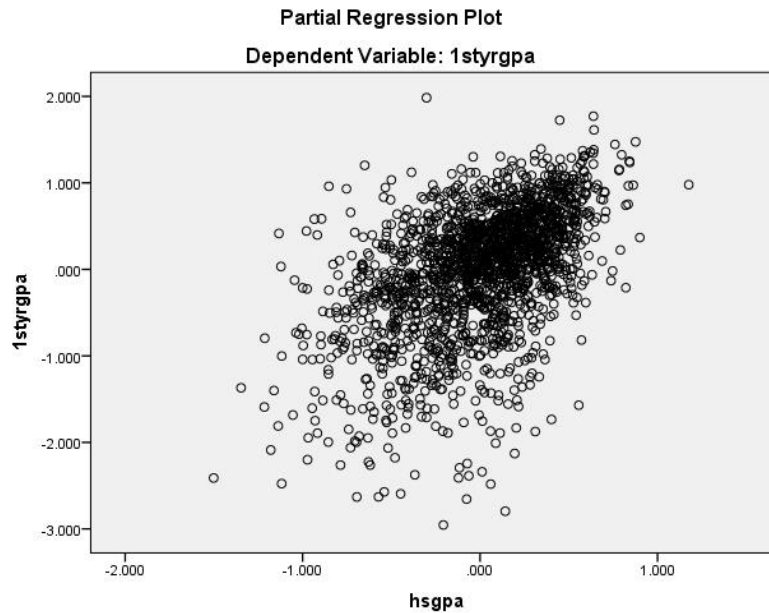


Figure 11. Partial Regression Plot of High School Grade Point Average for the Stepwise Multiple Regression of First-Year Grade Point Average and Selected Institutional and Beginning College Survey of Student Engagement Variables

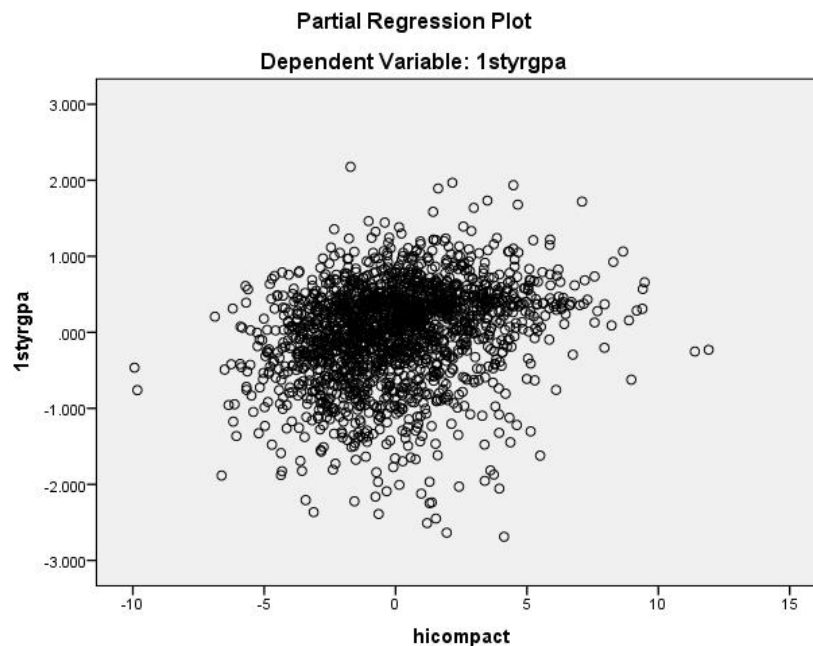


Figure 12. Partial Regression Plot of ACT Score for the Stepwise Multiple Regression of First-Year Grade Point Average and Selected Institutional and Beginning College Survey of Student Engagement Variables

Of the eleven possible predictor variables used in this analysis, only two presented as acceptable at explaining at least 1% (as determined by examining  $R^2$  Change values) of the

variance in the dependent variable and were selected for inclusion in the regression model used in this study. Overall, seven of the independent variables were found statistically significant. From the standpoint of practical significance, any independent variables resulting in less than 1% of variance explained were not selected for inclusion in the accepted regression model. This decision was based on the significance of effect size calculations measuring an effect size as small at 2% ( $f^2=.2$ ) of variance explained (Cohen, 1988). In an attempt to include variables with a significant effect size regardless of statistical significance, only those explaining at least 1% of the variance in the dependent variable were included in the accepted regression model.

The highest bivariate correlations existed between first-year GPA and high school GPA (.658) and ACT score (.521). All other variables had bivariate correlations at the .258 level or lower. Table 37 includes all bivariate correlation measures for the eleven possible predictor variables entered into the regression analysis.

The first variable to enter the model was high school GPA which explained a large portion (43.3%) of the variance in the dependent variable. ACT score was the next predictor variable to enter the model, which explained a small portion (another 3.9%) of the variance in the dependent variable. The total variance in first-year GPA explained by the above mentioned predictors in the model was 47.1%; therefore, as high school GPA and ACT score increased, the students' first-year GPA increased. Table 38 includes the model summary; model two was the regression model accepted for this study. As can be seen by the  $R^2$  *Change* values, only two variables explained more than 1% of the variance in the dependent variable, thus making them more acceptable for analysis (Cohen, 1988).

Table 37. Bivariate Correlations for the Stepwise Multiple Regression of First Year Grade Point Average and Selected Institutional and Beginning College Survey of Student Engagement Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. First-year GPA	--	.658	.521	-.069	.258	.077	-.051	-.007	-.135	.075	.040	.095
2. High school GPA	.658	--	.541	.022	.275	.084	.012	.019	-.141	.061	.019	.102
3. ACT score	.521	.541	--	.033	.315	.043	-.093	-.036	-.166	-.025	-.040	.141
4. Expected weekly work hours	-.069	.022	.033	--	.013	-.049	.110	.013	.051	.045	.075	.050
5. Expected college grades	.258	.275	.315	.013	--	.038	-.059	.118	.151	.277	-.247	.339
6. Intent to graduate from institution	.077	.084	.043	-.049	.038	--	.044	.060	.055	.073	-.092	.065
7. First generation status	-.051	.012	-.093	.110	-.059	.044	--	-.047	-.001	.077	.019	.026
8. High School Academic Engagement <sup>a</sup>	-.007	.019	-.036	.013	.188	.060	-.047	--	.545	.308	-.105	.318
9. Expected Academic Engagement <sup>a</sup>	-.135	-.141	-.166	.051	.151	.055	-.001	.545	--	.409	-.103	.256
10. Expected Academic Perseverance <sup>a</sup>	.075	.061	-.025	.045	.277	.073	.077	.308	.409	--	-.077	.491
11. Expected Academic Difficulty <sup>a</sup>	.040	.019	-.040	.075	-.247	-.092	.019	-.105	-.103	-.077	--	-.205
12. Perceived Academic Preparation <sup>a</sup>	.095	.102	.141	.050	.339	.065	.026	.318	.256	.491	-.205	--

<sup>a</sup>Beginning College Survey of Student Engagement Scale Score.

Table 38. Model Summary for the Stepwise Multiple Regression Analysis of First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	<i>SE</i> of Estimate	Change Statistics		
					<i>R</i> <sup>2</sup> Change	<i>F</i> Change	<i>P</i> of <i>F</i> Change
						1432.0	
1	.66 <sup>a</sup>	.433	.433	.65	.433	8	<.001
2	.69 <sup>b</sup>	.471	.471	.63	.039	136.97	<.001
3	.69 <sup>c</sup>	.479	.479	.62	.008	28.10	<.001
4	.69 <sup>d</sup>	.482	.481	.62	.003	9.89	.002
5	.70 <sup>e</sup>	.485	.483	.62	.003	9.68	.002
6	.70 <sup>f</sup>	.486	.485	.62	.002	5.81	.016
7	.70 <sup>g</sup>	.488	.486	.62	.002	6.59	.010

<sup>a</sup> Predictor: High School GPA

<sup>b</sup> Predictors: High School GPA and ACT Score

<sup>c</sup> Predictors: High School GPA, ACT Score, and Expected Weekly Work Hours

<sup>d</sup> Predictors: High School GPA, ACT Score, Expected Weekly Work Hours, and Expected Academic Perseverance

<sup>e</sup> Predictors: High School GPA, ACT Score, Expected Weekly Work Hours, Expected Academic Perseverance, and Expected Academic Difficulty

<sup>f</sup> Predictors: High School GPA, ACT Score, Expected Weekly Work Hours, Expected Academic Perseverance, Expected Academic Difficulty, and Expected College Grades

<sup>g</sup> Predictors: High School GPA, ACT Score, Expected Weekly Work Hours, Expected Academic Perseverance, Expected Academic Difficulty, Expected College Grades, and Expected Academic Engagement

Dependent Variable: First-Year GPA

While other variables were significant in the model, possibly due to the large sample size, they did not explain enough of the variance in the dependent variable to be included in the model chosen for this study (Cohen, 1988). Results from the one-way analysis of variance, presented in Table 39, further confirmed that the combination of the two variables listed above were statistically significant to the explanation of the variance in first-year GPA. Following the analysis of variance for the two selected variables in the model is the one-way analysis of variance for all variables presenting statistical significance in the regression analysis (Table 40).

Table 39. ANOVA for the Stepwise Multiple Regression Analysis of First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables - Variables Included in Accepted Regression Model

Model <sup>a</sup>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Regression	662.18	2	331.09	836.44	<.001
Residual	741.79	1874	.40		
Total	1403.96	1876			

<sup>a</sup>Variables in accepted model: High School GPA and ACT score.

Table 40. Results from the ANOVA for the Stepwise Multiple Regression Analysis of First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables - Statistically Significant Independent Variables

Model <sup>a</sup>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Regression	685.50	7	97.93	254.75	<.001
Residual	718.46	1869	.38		
Total	1403.96	1876			

<sup>a</sup>Statistically significant variables: High School GPA, ACT Score, Expected Weekly Work Hours, Expected Academic Perseverance, Expected Academic Difficulty, Expected College Grades, and Expected Academic Engagement

Of the eleven variables that were used for analysis, seven were found statistically significant. Two of the seven variables found statistically significant were accepted as the regression model chosen for this study. The nine independent variables either excluded from the analysis or not found to contribute more than 1% of the explained variance in the dependent variable were: expected weekly work hours, expected college grades, intent to graduate from institution, first-generation student status, High School Academic Engagement Scale score, Expected Academic Perseverance Scale score, Expected Academic Difficulty Scale Score, Expected Academic Engagement Scale score, and Perceived Academic Preparation Scale score. Table 41 contains the summary of variables not selected for inclusion in the chosen regression model including those variables found not statistically significant in the regression analysis.

Table 41. Variables Not Included in the Stepwise Multiple Regression Model for First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

Variable Excluded from Model <sup>a</sup>	<i>Beta</i> in	<i>t</i>	<i>p</i>	Partial Correlation	Collinearity Statistics	
					Tolerance	<i>VIF</i>
Expected weekly work hours <sup>c</sup>	-.09	-5.30	<.001	-.12	.99	1.00
Expected college grades <sup>c</sup>	.04	2.40	.017	.05	.89	1.13
Intent to graduate from institution <sup>b</sup>	.02	1.31	.189	.03	.99	1.01
First generation status <sup>b</sup>	-.04	-2.13	.033	-.05	.99	1.01
High school academic engagement <sup>b</sup>	-.01	-.51	.610	-.01	.99	1.00
Expected academic engagement <sup>c</sup>	-.02	-1.30	.195	-.03	.97	1.03
Expected academic perseverance <sup>c</sup>	.05	2.88	.004	.07	.99	1.01
Expected Academic Difficulty <sup>c</sup>	.04	2.38	.017	.05	.99	1.00
Perceived Academic Preparation <sup>b</sup>	.01	.50	.622	.01	.98	1.02

<sup>a</sup>Predictors: High School GPA and ACT Score. <sup>b</sup>Independent variables found not significant and excluded from regression analysis. <sup>c</sup>Independent variables found significant but not selected for inclusion in model.

The unstandardized and standardized coefficients for the chosen variables in the model that explained a portion of the variance in first-year GPA are shown in Table 42. A review of the standardized *beta* coefficients describes the predicted change in first-year GPA for each unit change in the predictor variables (Hair *et al*, 2010). By using standard deviation values the researcher can interpret the number of standard deviations that the outcome will change as a result of one standard deviation change in the predictor (Field, 2013). High school GPA had the highest standardized *beta* coefficient (.53) and ACT score had the second highest (.23) resulting in the indication that high school GPA has a more stronger positive relationship to first-year GPA than does ACT score. Both of these variables indicate a rise in first-year GPA as the values of ACT score and high school GPA rise. By examining the standard deviation values and standardized *beta* coefficients for the two independent variables compared to the dependent variable the researcher can explain the magnitude of the change in the dependent for every unit change in the predictor variables (Field, 2013). High school GPA had a standard deviation of .45 and a standardized *beta* value of .53 so for every .45 point increase in high school GPA there can

be a predicted increase of .53 standard deviation units (.53 GPA point increase) in first-year GPA if all else is held constant. ACT score had a standard deviation of 3.3 and a standardized *beta* value of .23 so it can be calculated that for every 3.3 point increase in ACT score there can be a predicted increase of .23 standard deviation points (.76 GPA points) in first-year GPA.

Table 42. Standardized and Unstandardized Coefficients for Predictors for the Stepwise Multiple Regression Analysis of First-Year Grade Point Average with Selected Institutional and Beginning College Survey of Student Engagement Variables

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i>
	<i>B</i>	<i>SE</i>	<i>Beta</i>		
Constant	-2.07	.12		-17.64	<.001
High School GPA	1.02	.04	.53	26.62	<.001
ACT Score	.06	.01	.23	11.70	<.001

Two possible predictor variables measured as significant predictors in the model and explained 47.1% of the variance in the dependent variable, first-year GPA. This value ( $R^2=.472$ ) was interpreted as outlined by Cohen (1988) which indicated that the association was large. When the effect size was calculated as outlined by Cohen (1988) the value ( $f^2=.89$ ) indicated a large effect size. The reader should note that while the association measure of the model and the effect size is large, there is one variable in the model responsible for explaining 43.3% of the total variance in the dependent variable. The second and only other variable in the accepted model only explained another 3.9% of the variance in the dependent variable. Other variables analyzed, while statistically significant, contributed only negligible effects (less than 1% of variance explained) to the possible models (Cohen, 1988).



## **CHAPTER 5: SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS**

### **Summary**

This primary purpose of the study was to determine if a model existed that would help institutional staff identify at-risk students. More specifically, this study explored the possibility of using selected variables from the Beginning College Survey of Student Engagement (BCSSE) and selected institutional variables to identify students more likely to become at-risk after their first year of enrollment. The institutional variables were: ethnicity, student enrollment status (full or part-time enrolled), gender, ACT score (highest composite), first-year GPA, residential student status (in-state or out-of-state), and first-year earned hours. BCSSE variables included expected working hours, expected college grades, intention to graduate from institution, parental degree attainment (first-generation status), High School Academic Engagement Scale score, Expected Academic Engagement Scale score, Expected Academic Perseverance Scale score, Expected Academic Difficulty Scale score, and Perceived Academic Preparation Scale score.

The following are research objectives and questions for this study (the variables identified were based on Bean's (1981) model:

1. What are the characteristics of the students who completed the Beginning College Survey of Student Engagement survey at a regional, 4-year, public university who were members of the incoming freshman class between 2010 and 2012 based on the following variables:

- Ethnicity
- Full-time/part-time status
- Gender
- Expected working hours
- Expected grades in first year

- Intention to graduate from institution
- Parental degree attainment
- First-generation student status
- ACT score (highest composite)
- First year GPA
- Residential student status

2. What are the characteristics of students who completed the BCSSE survey each year

between 2010 and 2012 compared to students who did not complete the BCSSE survey based on the following variables:

- Ethnicity
- Full-time/part-time status
- Gender
- First year earned hours
- Residential student status

3. What are the characteristics of students who were at-risk and who were not at-risk based on GPA as described on the following variables:

- Ethnicity
- Full-time/part-time status
- Gender
- ACT score (highest composite)
- First year earned hours
- Residential student status
- BCSSE completion (did complete or did not complete survey)

4. What are the characteristics of students who completed the BCSSE as compared to those who did not complete the BCSSE on the following variables:

- First year GPA
- ACT score (highest composite)

5. Can a regression model be developed that will help identify potential at-risk students using variables from BCSSE survey items and students' academic performance as measured by GPA after the first academic year?

### **Procedures**

The target and accessible population for this study was all first-time freshmen at a small, regional, public university in the south who entered the university in the fall semesters of 2010, 2011, and 2012. The total number of students studied included 3,606 first-time freshmen. Since first-year GPA was a critical measure to this study, students who did not complete their first year of college were deleted from the study. A total of 498 students were deleted for not completing their first academic year of study. The valid cases of student data numbered 3,045 after accounting for missing information making some of the student data invalid.

### **Beginning College Survey of Student Engagement**

Completion of the BCSSE survey was a key variable in this study. Students voluntarily completed the BCSSE survey at the beginning of their first semester of enrollment. The total number of students completing the BCSSE survey for the selected years of this study was 2,529 resulting in 2007 valid cases of BCSSE survey data. Cases of BCSSE data that were incomplete were deleted from this study, as they did not result in the variables used in analysis. BCSSE completers represented 70% of the entire first-time freshmen population for the years of this study. All students in the study were coded as either BCSSE completers or non-completers.

## **Data Collection**

Data was collected for this study using two instruments, a researcher designed data collection form and the Beginning College Survey of Student Engagement. The data acquired from the researcher designed data collection form was received from the Office of Institutional Research and Assessment at the university where this study was conducted. The Beginning College Survey of Student Engagement was administered online to students in the first two to three weeks of their first semester of college. Data from the BCSSE instrument was reported to the institution in raw form along with an interpretive report. Permission was received from the institution where this study was conducted to use the institutional data as well as the BCSSE data as the BCSSE data becomes the property of the institution once survey administration is complete. All identifying student information was removed from the data file before analysis and students were assigned a random identification number.

## **Summary of Findings**

### **Research Question 1: Characteristics of Students Completing the Beginning College Survey of Student Engagement**

The first research question sought to describe the characteristics of students who completed the BCSSE survey in the fall semesters of 2012, 2011, and 2012. The students were described on the following variables: ethnicity, student enrollment status, gender, intent to graduate from institution, parental degree attainment, residential student status, anticipated working hours (BCSSE variable), anticipated grades (BCSSE variable), ACT score (highest composite), and first-year GPA.

Among students who completed the BCSSE, the largest ethnic group identified was White/Caucasian (1,429; 71.2%) and the second largest ethnic group was African American (374. 16.6%). There were more females than males completing the survey with 67.9% (1,363) of

all respondents being females. A large majority of BCSSE completers were full-time enrolled students carrying a minimum of 12 credit hours (1,762; 87.8%). Slightly over 80% of students completing the BCSSE indicated that it was their intention to graduate from the institution where this study was conducted (1,607; 80.1%). In-state students greatly outnumbered out-of-state and international students by 95.2% (1,910).

Parental degree attainment was examined in order to classify students who completed the BCSSE as either a first-generation college student or not. Overall 53.8% (1,080) of BCSSE completers were first-generation college students; having no parent possessing a 4-year degree. A larger percentage of freshmen had a mother with a 4-year degree (589, 29.8%) than those with a father possessing a 4-year degree (444, 22.1%). A small percentage of BCSSE completers reported not knowing if either parent had earned a 4-year degree (158, 7.9%).

Two BCSSE variables were also examined for descriptive purposes: anticipated working hours and anticipated college grades. Most BCSSE completers (627, 31.2%) reported that they did not anticipate working at all while enrolled in college while the majority of students who did anticipate working while enrolled planned to work between 6-20 hours per week (871, 43.4%). The figure for those anticipating working 6-20 hours per week was obtained from adding the number of students and percentages from the top three work hour categories from the survey. Most students completing the BCSSE survey anticipated making at least a “B” average in their college courses (1,156, 52.9%). A slightly smaller percentage (753, 37.5%) anticipated making at least “A” grades in their college courses.

The final measures examined to describe BCSSE completers in research question 1 were ACT score and first-year GPA. As previously noted, students who did not complete their first year of enrollment were deleted from the study. BCSSE completers earned a mean ACT score of

21.96 with a standard deviation of 3.285. The minimum score reported was 11 with a maximum score of 34. The mean first-year GPA for students who completed the BCSSE was 2.62 with a standard deviation of .875.

### **Research Question 2: Characteristics of Students Completing the Beginning College Survey of Student Engagement Compared to Non-Completers**

The second research question identified and described the characteristics of students who completed the BCSSE survey for the selected years of this study as compared to the students who did not complete the survey on the variables ethnicity, full-time/part-time status, gender, first-generation student status, residential student status, first-year earned hours, first-year GPA, and ACT score (highest composite).

Both groups of students shared commonalities in the resulting frequencies and percentages of the ethnicity variable. For both completers and non-completers, the largest represented ethnic group was White/Caucasian (completers: 1,429; 71.2% and non-completers: 673, 61.4%). African American was the second largest ethnic group represented (completers: 374, 18.6% and non-completers: 292, 26.2%). BCSSE completers and non-completers also measured similar on percentages of full-time and part time students. Most students among both the completer and non-completer group were full time enrolled students (completers: 1,762; 87.8% and non-completers: 920, 83.9%).

Females were the majority among BCSSE completers (1,363; 67.9%) while BCSSE non-completers were divided almost evenly between males (547, 49.9%) and females (549. 51.1%). A large majority of both BCSSE completers and non-completers were in-state students with completers measuring 95.2% (1,190) in-state and non-completers measuring 94.6% (1,037) in-state.

The interval variables used for description and comparison of BCSSE completers and non-completers were ACT score, first-year GPA, and first-year earned hours. BCSSE completers had a higher mean ACT score (21.96) than non-completers (21.25). BCSSE completers also earned more hours ( $M=29.64$ ) and had higher first-year GPA measures ( $M=2.650$ ) than non-completers (mean hours: 25.11, mean GPA: 2.196).

### **Research Question 3: Characteristics of Students Identified as At-Risk Compared to Students Classified on Good Standing**

The third research question identified and described the characteristics of students who were classified as at-risk after their first year of enrollment and those were not at-risk (on good standing) based on academic performance measured by their first-year GPA. The variables used in this description were: ethnicity, student enrollment status (full-time or part-time), gender, ACT score (highest composite), first-year GPA, first-year earned hours, residential student status, and BCSSE completion rates. For the purposes of this study, an at-risk student was defined as a student who earned a first-year GPA below what was acceptable for remaining on good standing at the institution where this study was conducted. The GPA designated as at-risk for this study was a GPA measure below 2.000.

The largest ethnic group measured for both students on good standing and those at-risk was White/Caucasian (good standing: 1,669; 75.6% and at-risk: 836, 46.4%). The second largest ethnicity measured for both groups of students was African American with 43.8% (366) of at-risk students and 13.2% (292) of students on good standing. Full-time enrolled students made up the majority of both at-risk students and students on good standing (good standing: 1,993; 90.2% and at-risk: 643, 79.6%). Females were the majority for both groups of students as well. Students on good standing were 64.1% (1,416) female and at-risk students were 55.5% (464) female. A large majority of both groups were in-state students with students on good standing

measuring 94.4% in-state students and at-risk students being composed of 96.3% in-state students.

Students who became at-risk after their first year of enrollment had lower mean ACT scores (19.82) than those who remained on good standing (22.42) after their first year of enrollment. At-risk students also completed their first year of enrollment with fewer earned hours. Students at-risk had a mean earned hours measure of 16.72 and students on good standing had a mean earned hours measure of 32.33. GPA calculations for students at-risk were expected to be low, the mean measure for GPA of at-risk students was 1.258. Students on good standing had a mean GPA of 2.957. Overall, 78.9% (1556) of good standing students completed the BCSSE survey while only 21.1% (415) of at-risk students were among BCSSE completers.

#### **Research Question 4: Comparison of Beginning College Survey of Student Engagement Completers to Non-Completers and to all First-Time Freshmen**

Research question 4 sought to build a comparison of students who completed BCSSE to those who did not complete BCSSE using first-year GPA and ACT score (highest composite). Two independent samples *t*-tests were used to illustrate the differences between the groups of students who did complete the BCSSE as compared to the group of students who did not complete the BCSSE. These inferential *t*-tests were conducted to compare the means of BCSSE completers to the population of first-time freshmen on the measures of ACT score and first-year GPA.

The results of the independent samples *t*-tests identified statistically significant differences among BCSSE completers and non-completers on both measures of high school GPA and ACT score. The independent samples *t*-test comparing the mean scores of BCSSE completers and non-completers found a significant difference between the means of the two groups on high school GPA ( $t(3052)=12.47, p<.001$ ). The independent samples *t*-test comparing



the mean scores of BCSSE completers and non-completers found a significant difference between the means of the two groups on ACT score ( $t(3016)=5.75, p<.001$ ).

Two one-sample  $t$ -tests were also used to compare the mean ACT scores and high school GPA measures of the sample of BCSSE completers to the population mean measures to test for representativeness. The single-sample  $t$ -test that compared the mean high school GPA of the sample of BCSSE completers to the population mean high school GPA of 3.232 found a significant difference ( $t(1983)=7.38, p<.001$ ). The sample mean of 3.309 was significantly higher than the population mean. The single-sample  $t$ -test that compared the mean ACT score of the sample of BCSSE completers to the population mean ACT score of 21.71 found a significant difference ( $t(1962)=3.29, p<.001$ ). The sample mean of 21.95 was significantly higher than the population mean.

#### **Research Question 5: Stepwise Multiple Regression Analysis of First-Year Grade Point Average by Selected Beginning College Survey of Student Engagement and Institutional Variables**

This research question sought to determine which variables explained a substantial portion of the variance in the dependent variable, first-year GPA. A number of variables were included as predictors based on research found in the literature as well as on the theoretical framework used for this study. Variables selected as possible predictors for this analysis were: ACT score, high school GPA, expected weekly working hours, expected college grades, intent to graduate from institution, first-generation student status, and the BCSSE scale scores from the following scales: Expected Academic Engagement, Expected Academic Perseverance, Perceived Academic Preparation, High School Academic Engagement, and Expected Academic Difficulty.

Using stepwise multiple regression analyses it was found that nine variables were statistically significant predictors in explaining the variance in first-year GPA, but only two (high school GPA and ACT score) explained at least 1% of the variance in the dependent variable and

were chosen for inclusion in the regression model accepted for this study. The strongest predictor was high school GPA, which explained 43.3% of the variance followed by ACT score, which explained another 3.9% of the variance in first-year GPA. The two variables together explained 47.2% of the variance in first-year GPA. High school GPA explained much more of the variance in the dependent variable than all other predictor variables combined. The regression model indicated a large association measure and a large effect size mostly contributed by the large association of high school GPA with the dependent variable, first-year GPA.

## **Conclusions**

### **Conclusion One**

It was concluded that high school GPA is a strong indicator of student performance and ACT score is a minimal indicator of student performance. This conclusion affirms Bean's (1981) theoretical model of student attrition citing high school grades and achievement test scores as positively related to student success. This conclusion also affirms findings from several of the other studies cited in the review of literature for this study. Miller *et al.* (2007), Noble and Sawyer (2002), Pascarella (1984), and Sparkman *et al.* (2012) all found positive relationships between student success and high school GPA. The studies of Gifford *et al.* (2006), Noble and Sawyer (2002), Sawyer (2007), and Sparkman *et al.* (2012) found positive relationships between achievement test scores and student success.

### **Conclusion Two**

It was concluded that none of the BCCSSE variables are practical predictors of first-year GPA. Of the nine BCSSE variables used in this study only five were found to be statistically significant predictors of the dependent variable, first-year GPA. Of the five BCSSE variables found statistically significant, none were found to explain more than 1% of the variance in the dependent variable. This resulted in none of the BCSSE variables being accepted as part of the

regression model built to help explain the variance in first-year GPA. This could be a result of at-risk students being less likely to complete the BCSSE than those on good standing. Of all the students examined in this study, 27% were at-risk after their first year of enrollment while BCSSE non-completers became at-risk at a larger rate. Among BCSSE non-completers, 39.2% were at-risk at the end of their first year of enrollment. With fewer students completing the BCSSE instrument who would be at-risk, the researcher was only able to find small relationships with some of the factors that were examined as predictors of at-risk behavior. While there were relationships measured between the BCSSE variables and the dependent variable, the relationships were too small to conclude that they are practical predictors of first-year GPA.

### **Conclusion Three**

It was concluded that students who completed the BCSSE were higher performing students after their first year of college and had higher high school GPA and ACT score measures than did those who did not complete the BSSE. A statistically significant and practically important difference existed between BCSSE completers and non-completers on high school GPA and ACT score measures; therefore, the BCSSE completers were not representative of the freshmen population of this study. After their first year of college BCSSE completers earned more hours ( $M=29.64$ ) than those who did not complete BCSSE ( $M=25.11$ ). BCSSE completers also had higher first-year GPA measures ( $M=2.65$ ) than those who did not complete BCSSE ( $M=2.20$ ). While examining BCSSE data was helpful in describing certain characteristics and expectations of students in this study, the sample of students completing the BCSSE were not representative of the population of students in this study and conclusions from this study cannot be generalized to the population of freshmen in this study.

#### **Conclusion Four**

It was concluded that first generation student status (parental degree attainment) is not a predictor of first-year GPA. This independent variable was chosen for this study based on the positive relationship proposed in the theoretical framework of this study (Bean, 1981). This variable was also found to have positive relationships with student success in other studies as well (Pascarella, 1984; Pike & Kuh, 2005). The results of this study do not affirm findings from other studies resulting in the discovery of positive relationships between parental degree attainment and student success.

#### **Conclusion Five**

It was concluded that intent to graduate from the institution of enrollment is not a predictor of first-year GPA. This independent variable was chosen based on the positive relationship proposed in the theoretical framework of this study (Bean, 1981). The findings in this study do not affirm the proposed positive relationship of certainty of choice presented by Bean (1981) in his Causal Model of Student Attrition. Intent to graduate from institution was also proposed as meaningful by BCSSE but this study did not affirm that proposed relationship as well.

#### **Conclusion Six**

It was concluded that two BCSSE scale variables (High School Academic Engagement and Perceived Academic Preparation) are not predictors of first-year GPA. These scale variables were chosen for this study based on the proposed relationship of BCSSE scale measures to at-risk behavior (Indiana University, 2012). The findings of this study did not affirm the proposed relationship of the scale variables to at-risk behavior.

## **Conclusion Seven**

It can be concluded that a regression model exists that accounts for a large portion of the variance explained in first-year students' GPA, with high school GPA and ACT scores included as predictors of first-year GPA which served as a surrogate for at-risk behavior. Due to the large measure of association and the large effect size of the model used in this study, there is evidence supporting the use of the variables as predictors of students who may become at-risk. As these variable measures rise, so does student performance. Students with lower high school GPA measures and lower ACT scores had lower performance measures after their first year of college.

## **Recommendations for Practice**

### **Recommendation One**

Institutions utilizing BCSSE to identify at-risk students or to guide advising discussions may want to examine both BCSSE data and institutional data such as high school GPA and ACT score. High school GPA and ACT score are predictors of first-year GPA and can more accurately lead to the identification of at-risk students. Both high school GPA and ACT score are available even before BCSSE administration is completed so possible identification could happen earlier in a student's first semester. It is recommended that high school GPA and ACT score data be collected early in the first semester and examined in an attempt to identify those students who have low high school GPA measures and low ACT scores and connect them to resources that may increase their chances of success (tutoring, supplemental instruction, etc.). University staff who are involved in first-year initiatives and who are freshmen advisors should be responsible for analyzing this data to identify those students who have the most potential to become at risk. High school GPA and ACT score, along with helpful reports gained from the BCSSE instrument would make a good combination of resources to examine for identification of students who may be in need of assistance.

## **Recommendation Two**

The finding that high school GPA was the strongest indicator of student performance in this study was based on analysis of data for BCSSE completers only. Due to the nature of this study and its focus on examining BCSSE data along with institutional data, this finding cannot be applied to the entire incoming freshmen population at the institution where this study was conducted. It is recommended that further analysis be conducted to examine the relationship of high school GPA to student academic performance using the entire freshman population for analysis. Due to the differences found between the sample of BCSSE completers and the population as a whole, further examination of student data is warranted before action is taken on using high school GPA and ACT score as a predictor of student success.

## **Recommendations for Future Research**

### **Recommendation One**

Since the beginning of this study, the BCSSE organization has redesigned their instrument and administration of this new instrument began with the fall 2013 incoming freshmen class nationwide. Data included in this study was collected using the previous version of the instrument. It is recommended that future research be conducted using data from the updated BCSSE instrument at the institutional level to explore any relationships that may exist between the data received as a result of the new instrument and student academic performance.

### **Recommendation Two**

With the conclusion of this study, there are other research initiatives that should be conducted to explore the relationship between selected possible predictor variables and student performance. These initiatives can be accomplished using qualitative, quantitative, or mixed methods studies and can answer the following possible research questions:

- Can a regression model be built with high school GPA and ACT scores along with selected variables from the new BCSSE instrument that will help identify potential at-risk students?
- Do students benefit from advising services utilizing the BCSSE First-Year Engagement Indicators to identify students needing intensive advising contact?
- How are variables from the new BCSSE instrument (student-faculty interaction, importance of campus support, hours studying, writing engagement, reading engagement, and mathematics engagement) related to student academic performance after the first year of enrollment in college?
- How is first-year GPA related to, or is it a predictor of, student success factors such as graduation GPA, retention, and graduation rates?
- How are institutional factors such as expenditure on resources and campus environment (as cited in sources from the review of literature in this study) related to student academic performance?

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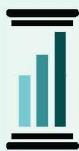


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## APPENDIX A: RESEARCH INSTRUMENT



### Beginning College Survey of Student Engagement

We are interested in your high school experiences and how often you expect to participate in certain activities during your first year of college. The information that you provide will help your institution improve teaching, learning and the quality of the student experience. Thanks for your help. Write or mark your answers in the boxes. Examples: ☒ or ☒

Please print your student ID number in the box below. Do not print your Social Security number.

Please print the first three letters of your last name:

You are taking this survey:

- ☐ Before attending orientation  
☐ While attending orientation  
☐ After attending orientation  
☐ Not applicable, not attending orientation

Please write in the 5-digit ZIP code of your home during your last year of high school.

     (U.S. residents only)

#### High School Experiences

1 Please write in the year you graduated from high school. (For example, "2010")

2 From which type of high school did you graduate? (Select only one.)

- ☐ Public ☐ Home school  
☐ Private, religiously-affiliated ☐ Other (e.g., GED)  
☐ Private, independent

3 What were most of your high school grades? (Select only one.)

- ☐ A ☐ B ☐ C  
☐ A- ☐ B- ☐ C- or lower  
☐ B+ ☐ C+ ☐ Grades not used

4 To date, in which of the following math classes did you earn a passing grade?

	Did not take	Passed	Did not pass
a. Algebra II	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Pre-Calculus/Trigonometry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Calculus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Probability or Statistics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5 During high school, how many years of the following subjects did you complete?

Years:	0	1	2	3	4	5 or more
a. English/Literature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Math	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. History/Social Sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Foreign language	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6 During high school, how many of the following types of classes did you complete?

	0	1	2	3	4	5 or more
a. Advanced Placement (AP) classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Honors classes (not AP) taught at your high school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. College courses for credit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7 During your last year of high school, about how much reading and writing did you do?

	Very much	Quite a bit	Some	Very little	None
a. Assigned reading (textbooks or other course materials)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Books read on your own (not assigned) for personal enjoyment or academic enrichment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Writing short papers or reports (5 or fewer pages)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Writing longer papers or reports (more than 5 pages)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8 During your last year of high school, about how many hours did you spend in a typical 7-day week doing each of the following?

a. Preparing for class (studying, doing homework, rehearsing, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1-5	6-10	11-15	16-20	21-25	26-30
	Hours per week						More than 30
b. Working for pay (before or after school, weekends)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1-5	6-10	11-15	16-20	21-25	26-30
	Hours per week						More than 30
c. Participating in co-curricular activities (arts, clubs, athletics, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1-5	6-10	11-15	16-20	21-25	26-30
	Hours per week						More than 30
d. Relaxing and socializing (watching TV, partying, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1-5	6-10	11-15	16-20	21-25	26-30
	Hours per week						More than 30

**9 During your last year of high school about how often did you do each of the following?**

	Very often	Often	Some-times	Never
a. Asked questions in class or contributed to class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Made a class presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Came to class without completing readings or assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Discussed grades or assignments with a teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Worked with other students on projects <b>during class</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Worked with classmates <b>outside of class</b> to prepare class assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Prepared two or more drafts of a paper or assignment before turning it in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Had serious conversations with students of a different race or ethnicity than your own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Discussed ideas from your readings or classes with teachers outside of class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Discussed ideas from your readings or classes with others outside of class (students, family members, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Talked with a counselor, teacher, or other staff member about college or career plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Missed a day of school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**10 Did you take the SAT and/or ACT?**

☐ Yes ☐ No

**If yes, please write your scores below (as best you remember):**

SAT (possible range=200-800)

Critical Reading	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mathematical Reasoning	<input type="text"/>	<input type="text"/>	<input type="text"/>
Writing	<input type="text"/>	<input type="text"/>	<input type="text"/>

ACT (possible range=1-36)

Composite	<input type="text"/>	<input type="text"/>
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**11 During your high school years, how involved were you in the following activities at your school or elsewhere?**

	Not involved	1	2	3	4	5	Highly involved
a. Performing or visual arts programs (band, chorus, theater, art, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Athletic teams (varsity, junior varsity, club sport, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Student government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Publications (student newspaper, yearbook, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Academic honor societies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Academic clubs (debate, mathematics, science, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Vocational clubs (business, health, technology, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Religious youth groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Community service or volunteer work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**12 Overall, how academically challenging was your high school?**

Not at all challenging	1	2	3	4	5	6	Extremely challenging
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**College Experiences**

**13 During the coming school year, about how many hours do you think you will spend in a typical 7-day week doing each of the following?**

a. Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
	Hours per week							
b. Working for pay on- or off- campus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
	Hours per week							
c. Participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
	Hours per week							
d. Relaxing and socializing (watching TV, partying, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
	Hours per week							



**14 During the coming school year, about how often do you expect to do each of the following?**

	Very often	Often	Some-times	Never
a. Ask questions in class or contribute to class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Make a class presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Work on a paper or project that requires integrating ideas or information from various sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Work with other students on projects <b>during class</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Work with classmates <b>outside of class</b> to prepare class assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Put together ideas or concepts from different courses when completing assignments or during class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Discuss grades or assignments with an instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Discuss ideas from your readings or classes with faculty members outside of class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Receive prompt feedback from faculty on your academic performance (written or oral)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Work with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Discuss ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Have serious conversations with students of a different race or ethnicity than your own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Try to better understand someone else's views by imagining how an issue looks from his or her perspective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Learn something that changes the way you understand an issue or idea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Have serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**15 During the coming school year, how certain are you that you will do the following?**

	Not at all certain	1	2	3	4	5	Very certain
a. Study when there are other interesting things to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Find additional information for course assignments when you don't understand the material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Participate regularly in course discussions, even when you don't feel like it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Ask instructors for help when you struggle with course assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Finish something you have started when you encounter challenges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Stay positive, even when you do poorly on a test or assignment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**16 During the coming school year, how difficult do you expect the following to be?**

	Not at all difficult	1	2	3	4	5	Very difficult
a. Learning course material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Managing your time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Paying college expenses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Getting help with school work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Making new friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Interacting with faculty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**17 How prepared are you to do the following in your academic work at this college?**

	Not at all prepared	1	2	3	4	5	Very prepared
a. Write clearly and effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Speak clearly and effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Think critically and analytically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Analyze math or quantitative problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Use computing and information technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Work effectively with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Learn effectively on your own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**18 How important is it to you that your college or university provides each of the following?**

	Not important	1	2	3	4	5	Very important
a. A challenging academic experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Support to help you succeed academically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Opportunities to interact with students from different economic, social, and racial or ethnic backgrounds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Assistance coping with your non-academic responsibilities (work, family, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Support to help you thrive socially	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Opportunities to attend campus events and activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**19 About how much of your college expenses (tuition, fees, books, room & board) this year will be provided by each of the following sources?**

	None	Less than half	Half or more	All or nearly all	Do not know
a. Scholarships and grants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Student loans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Parents/family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Self (work on-campus or off-campus, savings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**20 Did you receive a Federal Pell Grant?**

☐ Yes ☐ No ☐ Do not know

**21 What do you expect most of your grades will be at this college during the coming year? (Select only one.)**

☐ A ☐ B ☐ C  
☐ A- ☐ B- ☐ C- or lower  
☐ B+ ☐ C+ ☐ Grades not used

**22 Do you intend to graduate from this college?**

☐ Yes ☐ No ☐ Uncertain

**23 What is the highest academic degree that you intend to obtain at this or any college? (Select only one.)**

☐ Associate's degree (A.A., A.S., etc.)  
☐ Bachelor's degree (B.A., B.S., etc.)  
☐ Master's degree (M.A., M.S., etc.)  
☐ Doctoral degree (Ph.D., M.D., J.D., etc.)  
☐ Uncertain

**Additional Information**

**24 What month are you completing this survey?**

☐ Jan ☐ May ☐ Sep  
☐ Feb ☐ Jun ☐ Oct  
☐ Mar ☐ Jul ☐ Nov  
☐ Apr ☐ Aug ☐ Dec

**25 Do you know what your major will be?**

☐ No ☐ Yes, specify:

**26 Are you, or will you be, a full-time student this fall term?**

☐ Yes ☐ No

**27 How many of your close friends will attend this college during the coming year?**

☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 or more

**28 Your sex:**

☐ Female ☐ Male

**29 Are you an international student or foreign national?**

☐ Yes ☐ No

**30 What is your racial or ethnic identification? (Select only one.)**

☐ American Indian or other Native American  
☐ Asian, Asian American, or Pacific Islander  
☐ Black or African American  
☐ White (non-Hispanic)  
☐ Mexican or Mexican American  
☐ Puerto Rican  
☐ Other Hispanic or Latino  
☐ Multiracial  
☐ Other  
☐ I prefer not to respond

**31 Please indicate whether your parents completed a 4-year college degree.**

	Completed 4-year degree	Did not complete 4-year degree	Do not know
Mother (or guardian)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Father (or guardian)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**32 How far is your home from this college?**

☐ 20 miles or less ☐ 101-200 miles  
☐ 21-50 miles ☐ 201-400 miles  
☐ 51-100 miles ☐ More than 400 miles

**THANKS FOR SHARING YOUR RESPONSES!**

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## APPENDIX B: DATA COLLECTION FORM

This form was provided to the Office of Assessment and Institutional Research to collect student demographic and academic data. Data was requested for all first-time freshmen (FTF) who entered the university in the fall semesters between 2009 – 2012. The data was delivered to the researcher in a Microsoft Excel spreadsheet.

---

Please include all students coded as first-time freshmen with the entry semesters: fall 2009, fall 2010, fall 2011, and fall 2012. In addition to the data requested below, please include whether or not the student is currently enrolled or has graduated, dropped out, resigned, or transferred when such data is available.

Student Identification number

Entry semester

Gender

Ethnicity

Enrollment status first semester (full-time or part-time)

First generation student status (as reported on application)

Residency status (in state, out-of-state, or international)

High school GPA

Highest Composite ACT score

Highest Composite SAT score (if ACT not available)

First year cumulative GPA

First year cumulative earned hours

Enrollment status of second semester (full-time or part-time)



## APPENDIX C: ACT TO SAT CONVERSION CHART

### ACT–SAT Concordance

The ACT and SAT are different tests that measure similar but distinct constructs. The ACT measures achievement related to high school curricula, while the SAT measures general verbal and quantitative reasoning.

ACT and the College Board (producers of the SAT) have completed a concordance study that is designed to examine the relationship between two scores on the ACT and SAT. These concordance tables do not equate scores, but rather provide a tool for finding comparable scores.

You can also find the concordance tables and guidelines for proper use on our website at [www.act.org/aap/concordance](http://www.act.org/aap/concordance).



A tool for  
comparing  
scores

ACT Composite Score	SAT Score Critical Reading + Math (Single Score)	SAT Score Critical Reading + Math (Score Range)	ACT Score Combined English/Writing	SAT Score Writing (Single Score)	SAT Score Writing (Score Range)
36	1600	1600	36	800	800
35	1560	1540–1590	35	800	800
34	1510	1490–1530	34	770	770–790
33	1460	1440–1480	33	740	730–760
32	1420	1400–1430	32	720	710–720
31	1380	1360–1390	31	690	690–700
30	1340	1330–1350	30	670	660–680
29	1300	1290–1320	29	650	640–650
28	1260	1250–1280	28	630	620–630
27	1220	1210–1240	27	610	610
26	1190	1170–1200	26	590	590–600
25	1150	1130–1160	25	570	570–580
24	1110	1090–1120	24	550	550–560
23	1070	1050–1080	23	530	530–540
22	1030	1020–1040	22	510	510–520
21	990	980–1010	21	490	480–500
20	950	940–970	20	470	470
19	910	900–930	19	450	450–460
18	870	860–890	18	430	430–440
17	830	820–850	17	420	410–420
16	790	770–810	16	400	390–400
15	740	720–760	15	380	380
14	690	670–710	14	360	360–370
13	640	620–660	13	340	340–350
12	590	560–610	12	330	320–330
11	530	510–550	11	310	300–310

# APPENDIX D: LOUISIANA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD REQUEST FOR EXEMPTION

## Application for Exemption from Institutional Oversight

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/ projects using living humans as subjects, or samples, or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.

-- Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-F, listed below, when submitting to the IRB. Once the application is completed, please the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at <http://research.lsu.edu/CompliancePoliciesProcedures/InstitutionalReviewBoard%28IRB%29/Item24737.html>

-- A Complete Application Includes All of the Following:

(A) A copy of this completed form and a copy of parts B thru F.

(B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1&2)

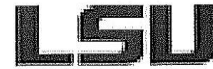
(C) Copies of all Instruments to be used.

\*If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.

(D) The consent form that you will use in the study (see part 3 for more information.)

(E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB. Training link: (<http://phrp.nihtraining.com/users/login.php>)

(F) IRB Security of Data Agreement: (<http://research.lsu.edu/files/Item26774.pdf>)



Institutional Review Board  
Dr. Robert Mathews, Chair  
131 David Boyd Hall  
Baton Rouge, LA 70803  
P: 225.578.8692  
F: 225.578.5983  
[irb@lsu.edu](mailto:irb@lsu.edu)  
[lsu.edu/irb](http://lsu.edu/irb)

1) Principal Investigator: Amy Hebert

Rank: Doctoral Student

Dept: Human Resource Educ

Ph: 985-438-1259

E-mail: ahebe81@lsu.edu

2) Co Investigator(s): please include department, rank, phone and e-mail for each

\*If student, please identify and name supervising professor in this space

Joe Kotrlík  
J. C. Atherton Alumni Professor Human Resource Education & Workforce Development  
Phone: 225-578-5748  
[kotrlík@lsu.edu](mailto:kotrlík@lsu.edu)

IRB# <u>E8410</u>	LSU Proposal #
<input checked="" type="checkbox"/>	Complete Application
<input checked="" type="checkbox"/>	Human Subjects Training
<input checked="" type="checkbox"/>	IRB Security of Data Agreement

3) Project Title: IDENTIFYING AT-RISK STUDENTS: A STUDY OF FRESHMEN AND THE BEGINNING COLLEGE SURVEY OF STUDENT ENGAGEMENT

### STUDY EXEMPTED BY:

Dr. Robert C. Mathews, Chairman  
Institutional Review Board  
Louisiana State University  
130 David Boyd Hall  
225-578-8692 / [www.lsu.edu/irb](http://www.lsu.edu/irb)

4) Proposal? (yes or no) No

If Yes, LSU Proposal Number                     

Also, if YES, either

☐ This application completely matches the scope of work in the grant

OR ☐ More IRB Applications will be filed later

Exemption Expires: 9/22/2016

5) Subject pool (e.g. Psychology students) First-year students entering Nicholls State University in the years 2

\*Circle any "vulnerable populations" to be used: (children <18; the mentally impaired, pregnant women, the ages, other). Projects with incarcerated persons cannot be exempted.

6) PI Signature Amy P. Hebert Date 9-3-13 (no per signatures)

\*\* I certify my responses are accurate and complete. If the project scope or design is later changes, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

Screening Committee Action: Exempted <input checked="" type="checkbox"/> Not Exempted <input type="checkbox"/>	Category/Paragraph <u>4</u>
Signed Consent Waived? <u>Yes</u> / No	
Reviewer <u>Mathews</u>	Signature <u>Robert C Mathews</u> Date <u>9/23/13</u>

## **APPENDIX E: HOST UNIVERSTIY INSTITUTIONAL REVIEW BOARD REQUEST FOR EXEMPTION**



Ms. Amy Hebert

[Redacted]  
Thibodaux, LA 70310

RE: HSIRB Deferral

Dear Ms. Hebert,

It is [Redacted] practice that graduate student's human subject research must be approved and monitored by the institution initiating the research. This letter is to acknowledge that I have received a copy of an approval letter from Louisiana State University's HSIRB board. You may begin to collect data from your subjects under [Redacted] HS-IRB deferred Protocol Number # 20130930010AD.

Sincerely,

R. Denis Soignier, Ph.D.  
HS IRB Chairperson

## VITA

Amy Hebert is currently serving Nicholls State University as Coordinator of the Academic Advising Center, Course Coordinator of University Studies 101, Instructor of Interdisciplinary Studies, and as a Senior Professional Academic Advisor. Her background includes the first-year experience course, academic advising, higher education administration, parent relations, and academic affairs. She is an active member of the National Academic Advising Association and frequent presenter for Nicholls' CAFÉ (Center for Advancing Faculty Engagement). She has also contributed presentations to Faculty Institute, the beginning-of-the-semester meeting of faculty across campus. Amy has presented at university-sponsored Research Week events, parent orientation, freshmen orientation, non-traditional student orientation, international student orientation, and transfer orientation programs. She is also the recipient of the Outstanding Alumnae Award for University College at Nicholls State University and the Presidential Award for Professional Staff, an award for outstanding unclassified staff at Nicholls State University. She has been employed at Nicholls State University for 11 years. She is an active volunteer for South LA Community Homes serving on their Human Rights Committee.

Amy received her Bachelor of General Studies with a concentration in Arts and Humanities from Nicholls State University in July 2000. In May 2008, she graduated with honors, earning a Master of Education in Higher Education Administration and Supervision from Nicholls State University. Her graduate practicum was focused on parent relations. She plans to graduate in May 2014 with a PhD in Human Resource Education and Workforce Development from Louisiana States University in Baton Rouge, Louisiana.